2006-08 HVAC

Heating/Air Conditioning - Civic (All Except Hybrid)

COMPONENT LOCATION INDEX

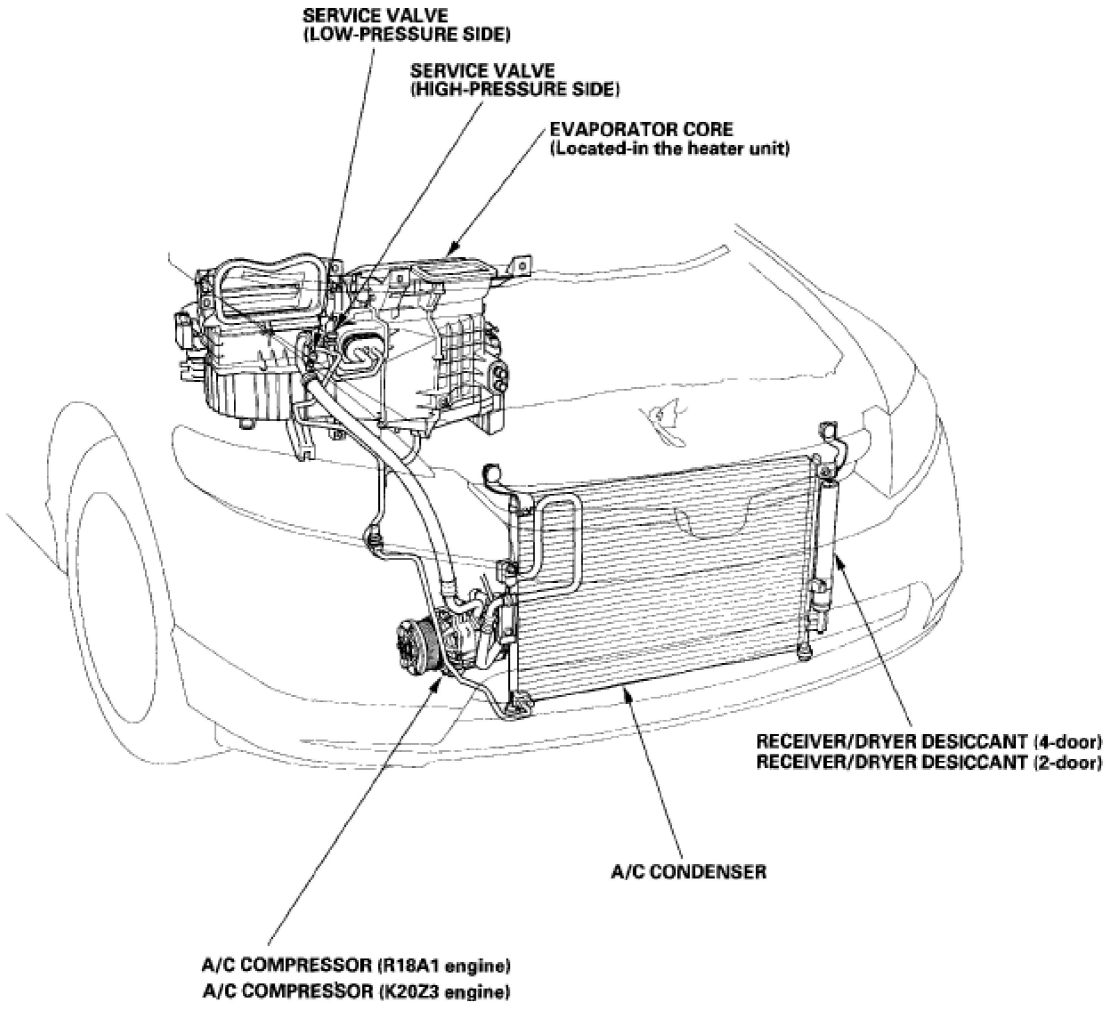


Fig. 1: Identifying Heating/Air Conditioning System Component Location (1 Of 3)

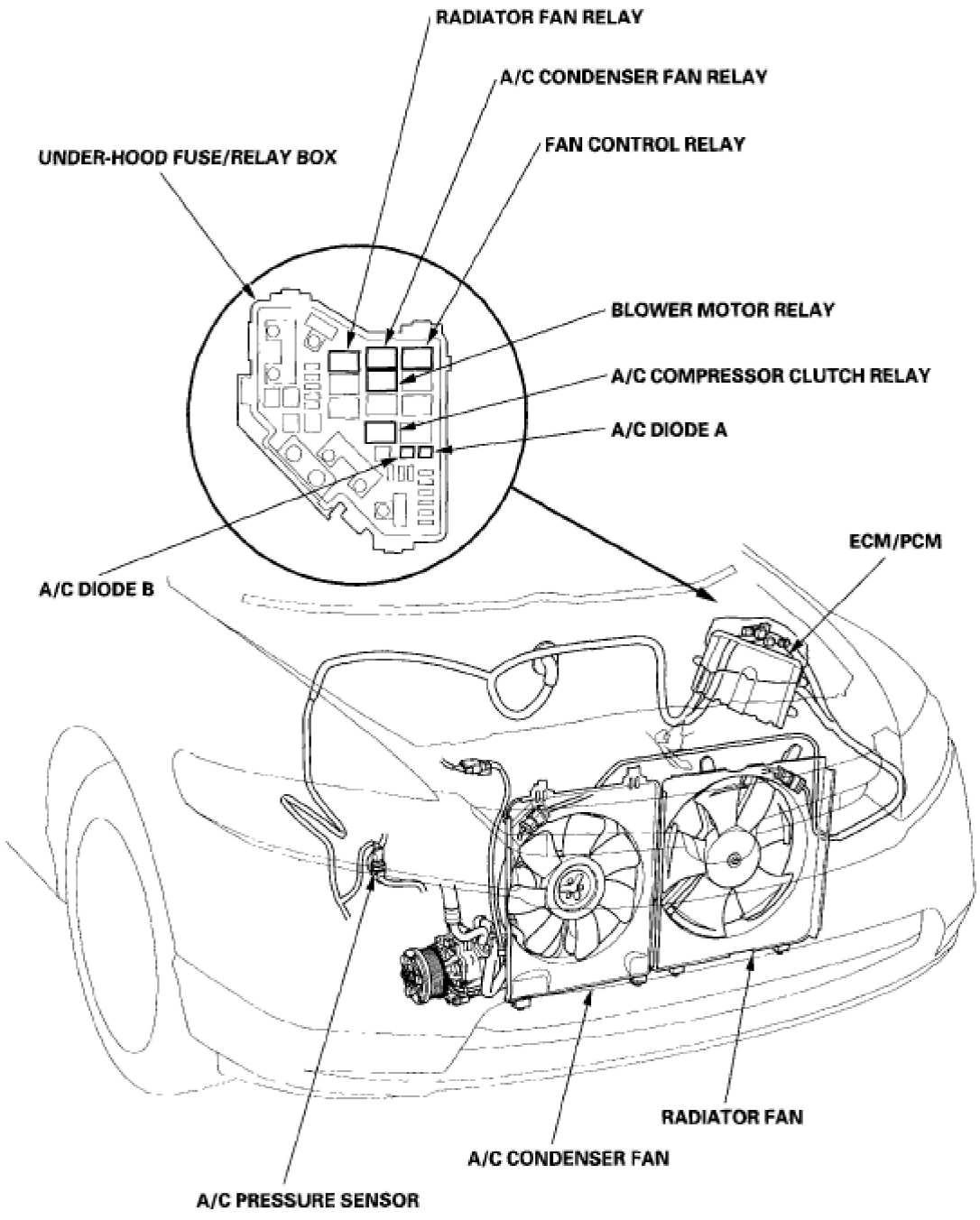


Fig. 2: Identifying Heating/Air Conditioning System Component Location (2 Of 3)

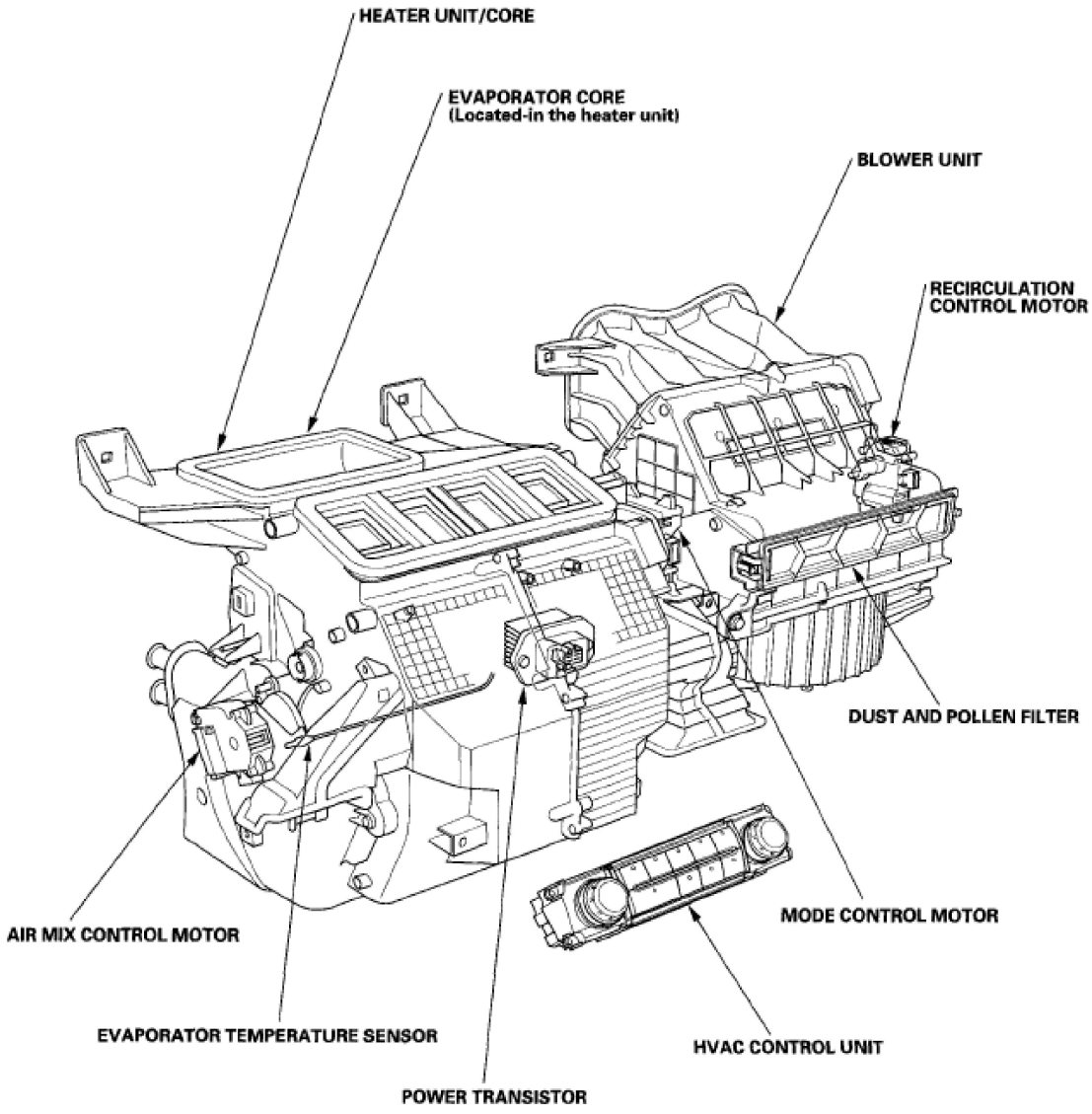


Fig. 3: Identifying Heating/Air Conditioning System Component Location (3 Of 3)

A/C SERVICE TIPS AND PRECAUTIONS

WARNING:

- **Compressed air mixed with the R-134a forms a combustible vapor.**
- **The vapor can burn or explode causing serious injury.**
- **Never use compressed air to pressure test R-134a service equipment or vehicle air**

conditioning systems.

CAUTION:

- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

The air conditioning system uses HFC-134a (R-134a) refrigerant and polyalkyleneglycol (PAG) refrigerant oil, which are not compatible with CFC-12 (R-12) refrigerant and mineral oil. Do not use R-12 refrigerant or mineral oil in this system, and do not attempt to use R-12 servicing equipment; damage to the air conditioning system or your servicing equipment will result. Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove R-134a from the air conditioning system.

If accidental system discharge occurs, ventilate work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

- Always disconnect the negative cable from the battery whenever replacing air conditioning parts.
- Keep moisture and dirt out of the system. When disconnecting any lines, plug or cap the fittings immediately; don't remove the caps or plugs until just before you reconnect each line.
- Before connecting any hose or line, apply a few drops of refrigerant oil to the O-ring.
- When tightening or loosening a fitting, use a second wrench to support the matching fitting.
- When discharging the system, use an R-134a refrigerant recovery/recycling/charging station; don't release refrigerant into the atmosphere.

A/C REFRIGERANT OIL REPLACEMENT

Recommended PAG oil: SP-10

- P/N 38897-P13-A01AH: 120 mL (4 fl-oz)
- P/N 38899-P13-A01: 40 mL (1 1/3 fl-oz)

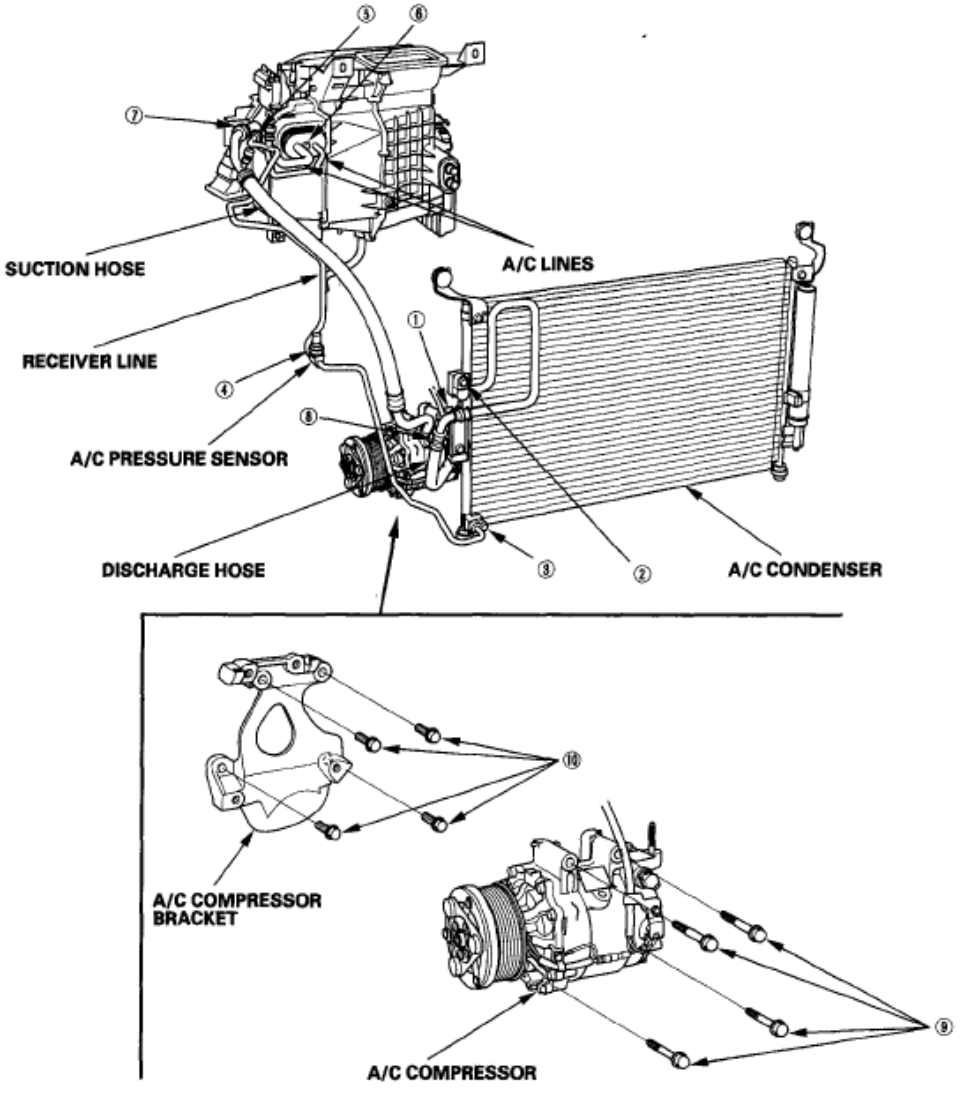
Add the recommended refrigerant oil in the amount listed if you replace any of the following parts.

- To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if it gets on the paint, wash it off immediately.

A/C condenser	50 mL (1 2/3 fl-oz)
Evaporator	40 mL (1 1/3 fl-oz)
Line or hose	10 mL (1/3 fl-oz)
Receiver/Dryer	10 mL (1/3 fl-oz)
Leakage repair	25 mL (5/6 fl-oz)
A/C compressor	Since the oil separator is equipped inside the compressor for this vehicle, oil drainage is unnecessary at the time of compressor replacement.

A/C compressor.....Since the oil separator is equipped inside the compressor for this vehicle, oil drainage is unnecessary at the time of compressor replacement.

A/C LINE REPLACEMENT



① Discharge hose to the A/C compressor (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
② Discharge hose to the A/C condenser (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
③ Receiver line to the A/C condenser (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
④ A/C pressure sensor to receiver line (11 x 1.0 mm): 11.3 N·m (1.2 kgf·m, 8.3 lbf·ft)
⑤ Receiver line to the A/C line (16 x 1.5 mm): 13.3 N·m (1.4 kgf·m, 9.8 lbf·ft)
⑥ A/C lines to the evaporator (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑦ A/C line to the suction hose (24 x 1.5 mm): 31.9 N·m (3.2 kgf·m, 23.5 lbf·ft)
⑧ Suction hose to the A/C compressor (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑨ A/C compressor to the A/C compressor bracket (8 x 1.25 mm): 22 N·m (2.2 kgf·m, 16 lbf·ft)
⑩ A/C compressor bracket to the engine block (8 x 1.25 mm): 24 N·m (2.4 kgf·m, 17.7 lbf·ft)

Fig. 4: Replacing A/C Line (With Specifications)

GENERAL TROUBLESHOOTING INFORMATION

How to Use the Self-diagnostic Function

The HVAC control unit has a self-diagnostic function for heating, ventilation, and air conditioning system. To run the self-diagnostic function, do the following:

1. Turn the ignition switch to LOCK (0).
2. Press and hold the recirculation control and rear window defogger buttons, turn the ignition switch ON (II).
3. Recirculation indicator turns on for 2 seconds, then self-diagnostic function begins.

NOTE:

- **The blower motor will run at any speed regardless of the dial positioning.**
- **In the case of multiple problems, the recirculation indicator will blink the lowest number DTC only.**
- **If no DTCs are found, the indicator will not blink.**

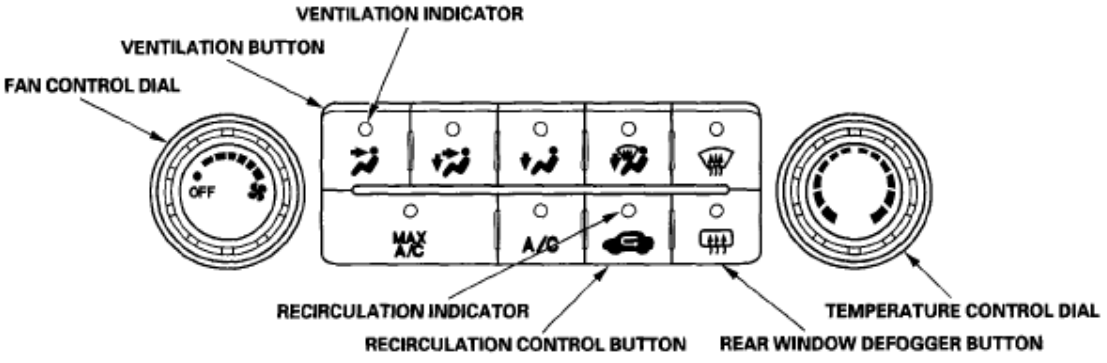


Fig. 5: Using Self-Diagnostic Function

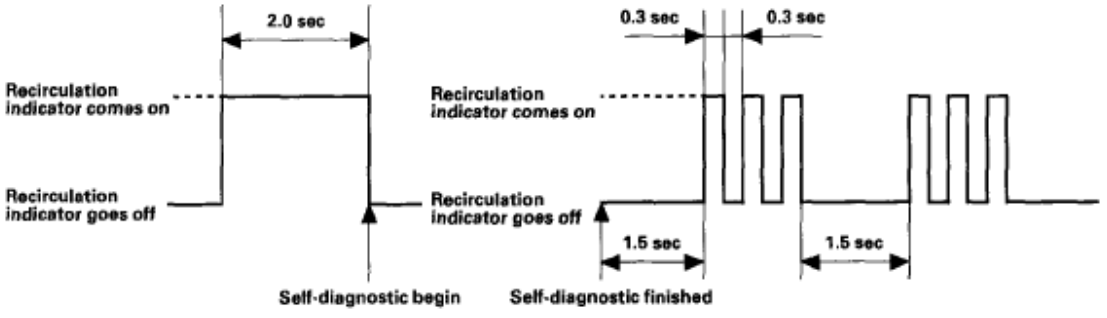


Fig. 6: Example Of DTC Indication Pattern (DTC3)

DETECTION ITEM REFERENCE

DTC (Recirculation Indicator Blinks)	Detection Item

1	An open in the air mix control motor circuit (see **DTC INDICATOR 1: AN OPEN IN THE AIR MIX CONTROL MOTOR CIRCUIT**)
2	A short in the air mix control motor circuit (see **DTC INDICATOR 2: A SHORT IN THE AIR MIX CONTROL MOTOR CIRCUIT**)
3	A problem in the air mix control linkage, door, or motor (see **DTC INDICATOR 3: A PROBLEM IN THE AIR MIX CONTROL LINKAGE, DOOR, OR MOTOR**)
4	An open or short in the mode control motor circuit (see **DTC INDICATOR 4: AN OPEN OR SHORT IN THE MODE CONTROL MOTOR CIRCUIT**)
5	A problem in the mode control linkage, doors, or motor (see **DTC INDICATOR 5: A PROBLEM IN THE MODE CONTROL LINKAGE, DOORS, OR MOTOR**)
6	A problem in the blower motor circuit (see **DTC INDICATOR 6: A PROBLEM IN THE BLOWER MOTOR CIRCUIT**)
7	HVAC control unit internal error (see **DTC INDICATOR 7: HVAC CONTROL UNIT INTERNAL ERROR**)
8	An open in the evaporator temperature sensor circuit (see **DTC INDICATOR 8: AN OPEN IN THE EVAPORATOR TEMPERATURE SENSOR CIRCUIT**)
9	A short in the evaporator temperature sensor circuit (see **DTC INDICATOR 9: A SHORT IN THE EVAPORATOR TEMPERATURE SENSOR CIRCUIT**)

CLEAR THE DTCS

When the problem is repaired, DTCs will automatically clear.

MAX COOL POSITION FUNCTION

When the mode control button is in the MAX A/C position, the HVAC control unit will automatically select the recirculation mode and turn the A/C on. If the recirculation switch is pressed when in MAX A/C, MAX A/C turns off. If A/C is pressed when in MAX A/C, the A/C turns off.

SYMPTOM TROUBLESHOOTING INDEX

SYMPTOM TROUBLESHOOTING INDEX

Symptom	Diagnostic procedure	Also check for
Recirculation control doors do not change between Fresh and Recirculate	Recirculation control motor circuit troubleshooting (see **RECIRCULATION CONTROL MOTOR CIRCUIT TROUBLESHOOTING**)	• HVAC DTCs (see **GENERAL TROUBLESHOOTING INFORMATION**) • Blown fuse No. 36 (10 A) in the under-dash fuse/relay box • Cleanliness and tightness of all terminals
Blower, heater controls, and A/C do not work	HVAC control power and ground circuit troubleshooting (see **HVAC CONTROL POWER AND GROUND CIRCUIT TROUBLESHOOTING**)	• HVAC DTCs (see **GENERAL TROUBLESHOOTING INFORMATION**) • Blown fuse No. 36 (10 A) in the under-dash fuse/relay box • Poor ground at G504 (see **CONNECTOR TO HARNESS INDEX**) • Cleanliness and tightness of all terminals
		• HVAC DTCs (see **GENERAL**

Both fans do not run at low speed with the A/C on (but the A/C compressor runs with the A/C on)	Radiator and A/C condenser fan low speed circuit troubleshooting (see **RADIATOR AND A/C CONDENSER FAN LOW SPEED CIRCUIT TROUBLESHOOTING**)	**TROUBLESHOOTING INFORMATION**) • Blown fuse No. 7 (20 A: M/T) or (30 A: A/T) in the under-hood fuse/relay box, and No. 36 (10 A) in the under-dash fuse/relay box • Poor ground at G301 (see **CONNECTOR TO HARNESS INDEX**) • Cleanliness and tightness of all terminals
The A/C condenser fan does not run at high speed (but both fans run at low speed and the A/C compressor operates with the A/C on)	A/C condenser fan high speed circuit troubleshooting (see **A/C CONDENSER FAN HIGH SPEED CIRCUIT TROUBLESHOOTING**)	• HVAC DTCs (see **GENERAL TROUBLESHOOTING INFORMATION**) • Blown fuse No. 6 (20 A) and No. 15 (7.5 A) in the under-hood fuse/relay box • Poor ground at G301 (see **CONNECTOR TO HARNESS INDEX**) • Cleanliness and tightness of all terminals
	A/C pressure sensor troubleshooting (R18A1 engine): A/C pressure sensor circuit low voltage (see **DTC P0532: A/C PRESSURE SENSOR CIRCUIT LOW VOLTAGE**), A/C pressure sensor circuit high voltage (see **DTC P0533: A/C PRESSURE SENSOR**	

Both fans do not run at high speed with the A/C on (but both fans run at low speed and the A/C compressor operates with the A/C on)	**CIRCUIT HIGH VOLTAGE**) A/C pressure sensor troubleshooting (K20Z3 engine): A/C pressure sensor circuit low voltage (see **DTC P0532: A/C PRESSURE SENSOR CIRCUIT LOW VOLTAGE**), A/C pressure sensor circuit high voltage (see **DTC P0533: A/C PRESSURE SENSOR CIRCUIT HIGH VOLTAGE**) ECT troubleshooting (R18A1 engine): ECT sensor 2 circuit low voltage (see **DTC P2184: ECT SENSOR 2 CIRCUIT LOW VOLTAGE**), ECT sensor 2 circuit high voltage (see **DTC P2185: ECT SENSOR 2 CIRCUIT HIGH VOLTAGE**) ECT troubleshooting (K20Z3 engine): ECT sensor circuit low voltage (see **DTC P2184: ECT SENSOR 2 CIRCUIT LOW VOLTAGE**), ECT sensor circuit high voltage (see **DTC P2185: ECT SENSOR 2 CIRCUIT HIGH VOLTAGE**)	• Powertrain DTCs, R18A1 engine (see **GENERAL TROUBLESHOOTING INFORMATION**), K20Z3 engine (see **GENERAL TROUBLESHOOTING INFORMATION**) • Cleanliness and tightness of all terminals
The A/C		• HVAC DTCs (see **GENERAL TROUBLESHOOTING**

compressor clutch does not engage (but both fans run with the A/C on)	A/C compressor clutch circuit troubleshooting (see **A/C COMPRESSOR CLUTCH CIRCUIT TROUBLESHOOTING**)	**INFORMATION**) • Blown fuse No. 12 (7.5 A) in the under-hood fuse/relay box, and No. 36 (10 A) in the under-dash fuse/relay box • Cleanliness and tightness of all terminals
A/C system does not come on (both fans and the A/C compressor do not work); heater is OK	A/C signal circuit troubleshooting (see **A/C SIGNAL CIRCUIT TROUBLESHOOTING**) A/C pressure sensor troubleshooting (R18A1 engine): A/C pressure sensor circuit low voltage (see **DTC P0532: A/C PRESSURE SENSOR CIRCUIT LOW VOLTAGE**), A/C pressure sensor circuit high voltage (see **DTC P0533: A/C PRESSURE SENSOR CIRCUIT HIGH VOLTAGE**) A/C pressure sensor troubleshooting (K20Z3 engine): A/C pressure sensor circuit low voltage (see **DTC P0532: A/C PRESSURE SENSOR CIRCUIT LOW VOLTAGE**), A/C pressure sensor circuit high voltage (see **DTC P0533: A/C PRESSURE SENSOR CIRCUIT HIGH**	• HVAC DTCs (see **GENERAL TROUBLESHOOTING INFORMATION**) • Powertrain DTCs, R18A1 engine (see **GENERAL TROUBLESHOOTING INFORMATION**), K20Z3 engine (see **GENERAL TROUBLESHOOTING INFORMATION**) • Cleanliness and tightness of all terminals

	VOLTAGE)	

SYSTEM DESCRIPTION

The air conditioning system removes heat from the passenger compartment by circulating refrigerant through the system.

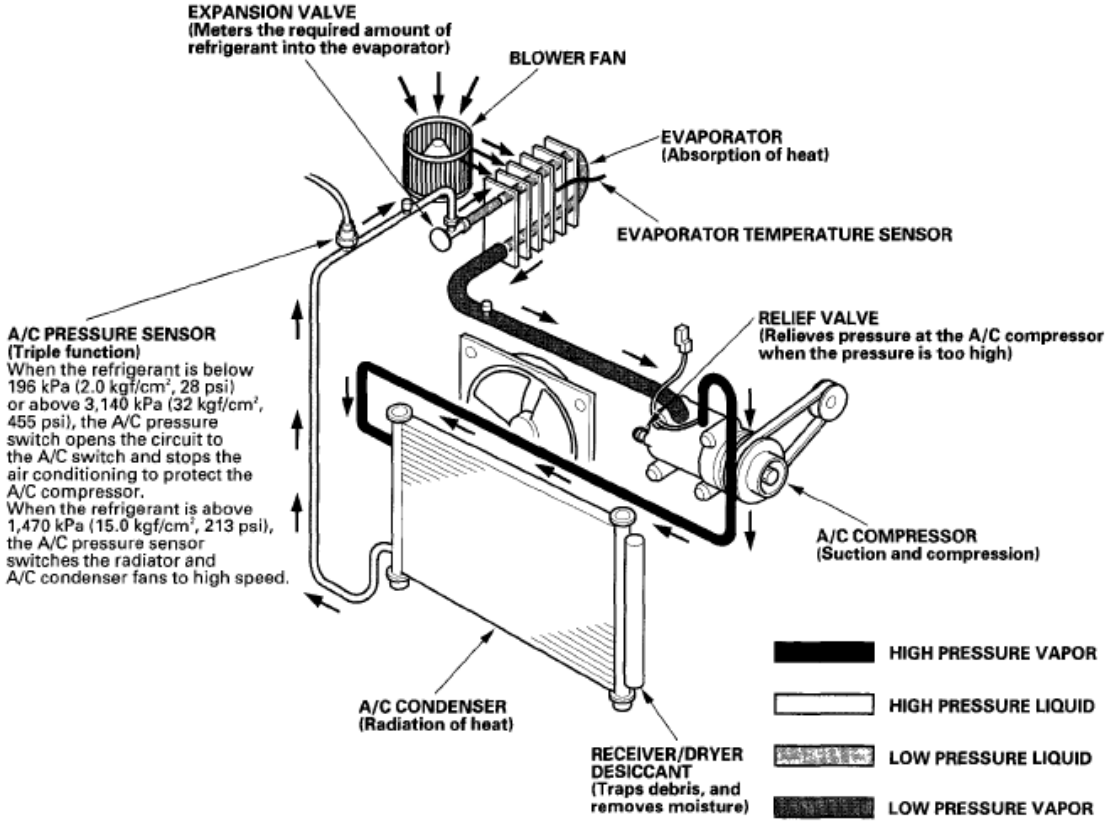

EXPANSION VALVE
(Meters the required amount of refrigerant into the evaporator)
BLOWER FAN
EVAPORATOR
(Absorption of heat)
EVAPORATOR TEMPERATURE SENSOR
A/C PRESSURE SENSOR
(Triple function)
When the refrigerant is below 196 kPa (2.0 kgf/cm², 28 psi) or above 3,140 kPa (32 kgf/cm², 455 psi), the A/C pressure switch opens the circuit to the A/C switch and stops the air conditioning to protect the A/C compressor.
When the refrigerant is above 1,470 kPa (15.0 kgf/cm², 213 psi), the A/C pressure sensor switches the radiator and A/C condenser fans to high speed.
RELIEF VALVE
(Relieves pressure at the A/C compressor when the pressure is too high)
A/C COMPRESSOR
(Suction and compression)
A/C CONDENSER
(Radiation of heat)
RECEIVER/DRYER
DESICCANT
(Traps debris, and removes moisture)
HIGH PRESSURE VAPOR
HIGH PRESSURE LIQUID
LOW PRESSURE LIQUID
LOW PRESSURE VAPOR

Fig. 7: Heating/Air Conditioning System Description

This vehicle uses HFC-134a (R-134a) refrigerant, which does not contain chlorofluorocarbons. Pay attention to the following service items:

- Do not mix refrigerants CFC-12 (R-12) and HFC-134a (R-134a). They are not compatible.
- Use only the recommended polyalkyleneglycol (PAG) refrigerant oil (SP-10) designed for the R-134a A/C compressor. Intermixing the recommended (PAG) refrigerant oil with any other refrigerant oil will result in A/C compressor failure.

- All A/C system parts (A/C compressor, discharge line, suction line, evaporator, A/C condenser, receiver/dryer, expansion valve, O-rings for joints) are designed for refrigerant R-134a. Do not exchange with R-12 parts.
- Use a halogen gas leak detector designed for refrigerant R-134a.
- R-12 and R-134a refrigerant servicing equipment are not interchangeable. Use only a recovery/recycling/charging station that is U.L.-listed and is certified to meet the requirements of SAE J2210 to service the R-134a air conditioning systems.
- Always recover refrigerant R-134a with an approved recovery/recycling/charging station before disconnecting any A/C fitting.

OIL SEPARATOR

Oil emission from the A/C compressor to the A/C line is reduced by placing the oil separator in the A/C compressor. This results in a thinner oil film inside of the heat exchanger (A/C condenser and evaporator). Air conditioning efficiency is increased without sacrificing engine performance.

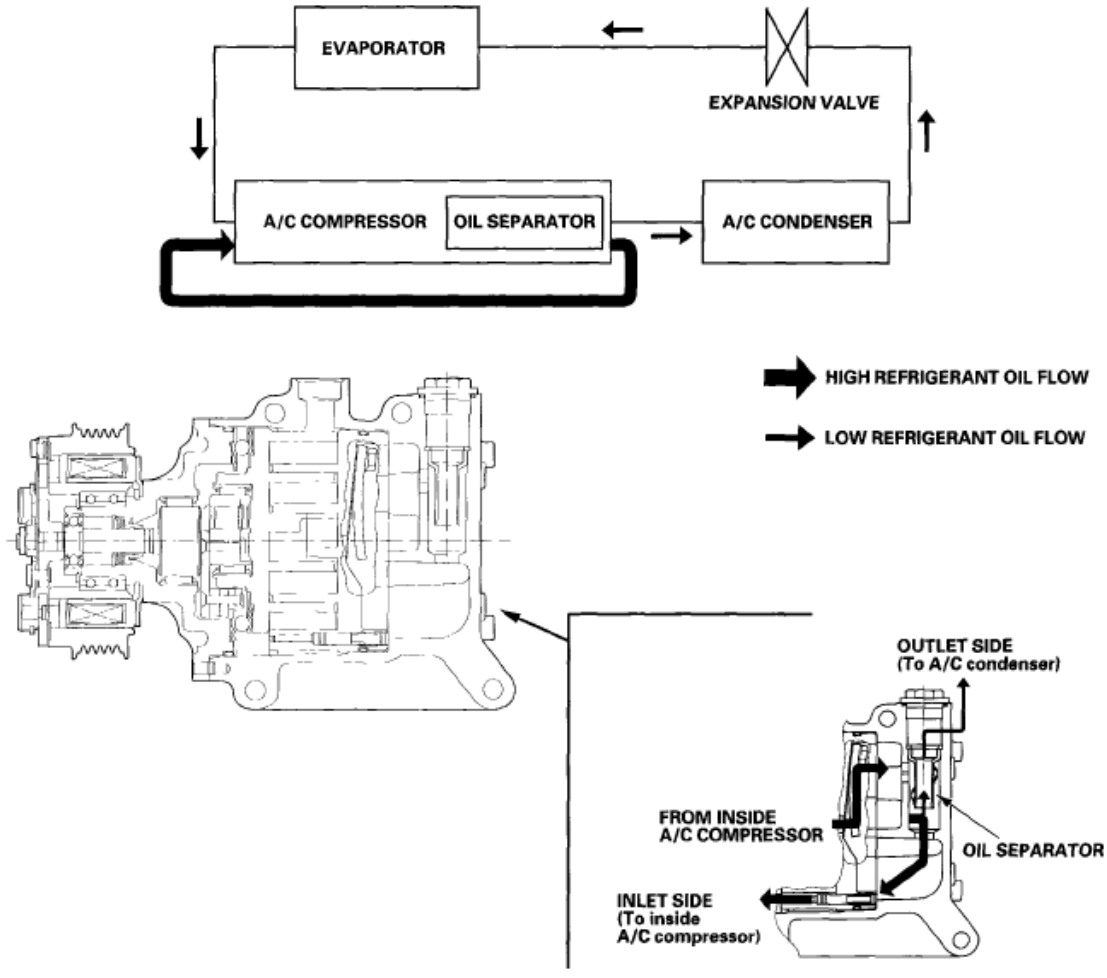


Fig. 8: Oil Separator System Description

A/C PRESSURE SENSOR

The A/C pressure sensor converts A/C pressure into electrical signals to the ECM/PCM.

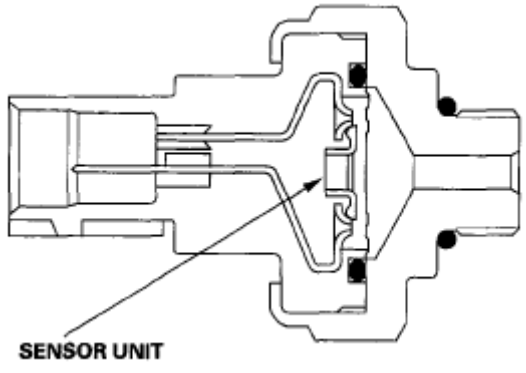
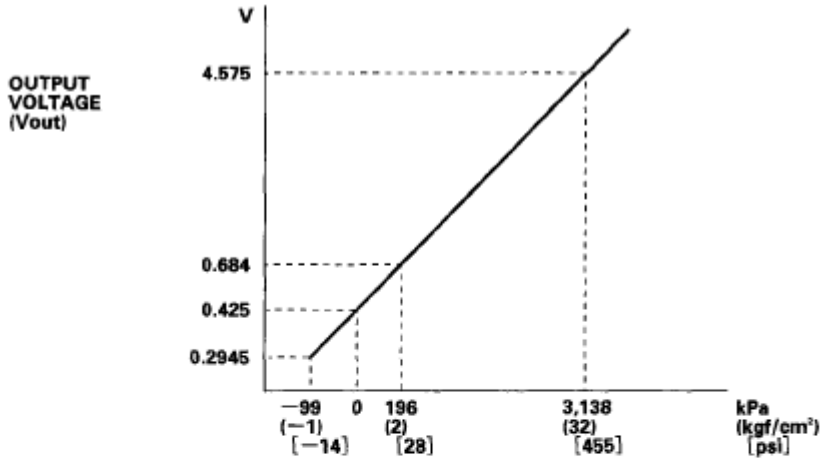


Fig. 9: A/C Pressure Sensor System Description (1 Of 2)

The response of the A/C pressure sensor is shown in **Fig. 10** .



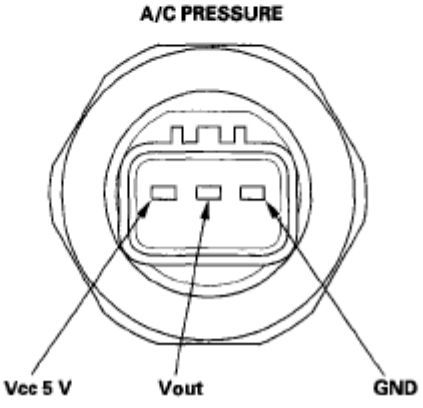


Fig. 10: A/C Pressure Sensor System Description (2 Of 2)

Heating/Air Conditioning Door Positions

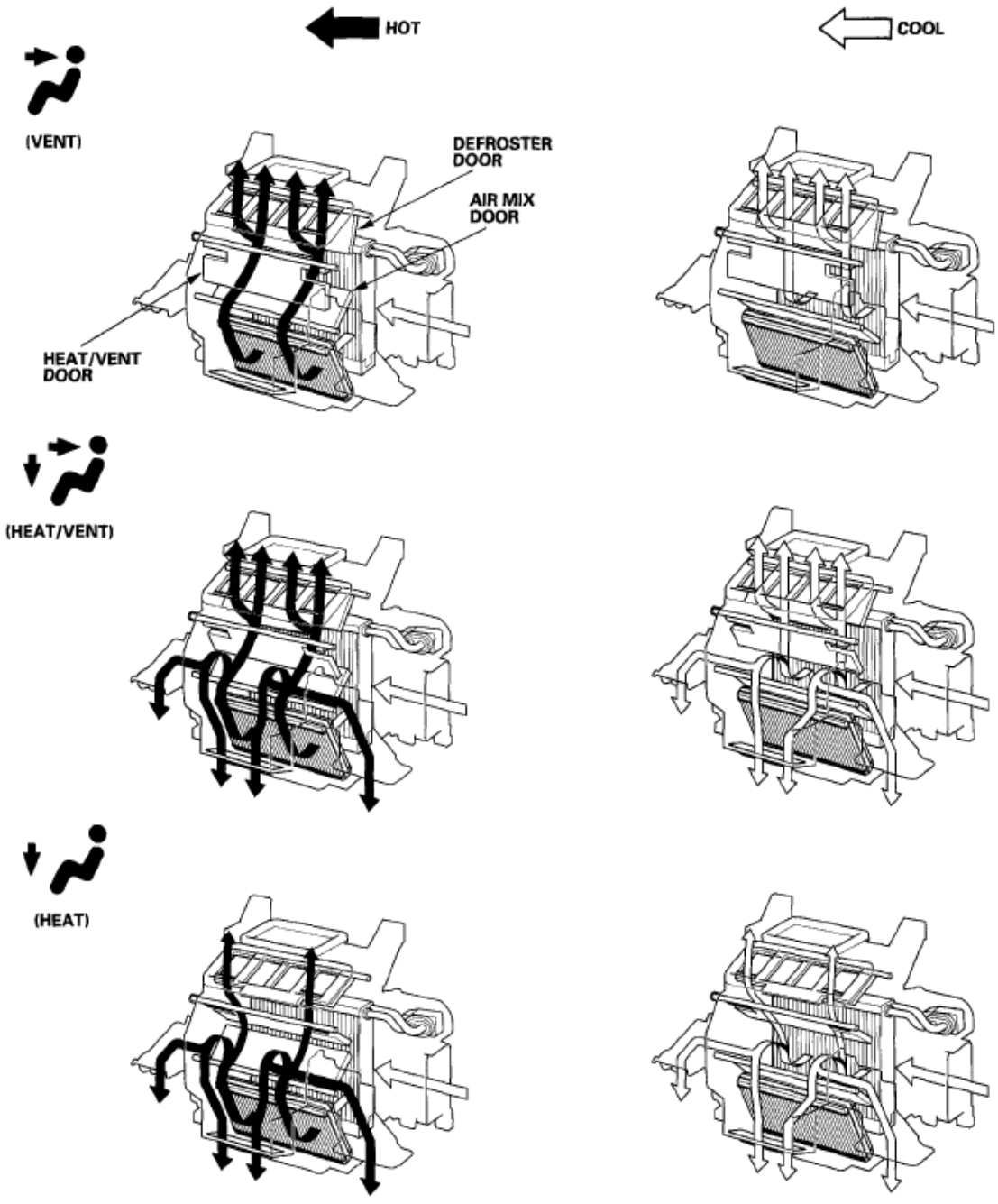


Fig. 11: Identifying Heating/Air Conditioning Door Positions (1 Of 2)

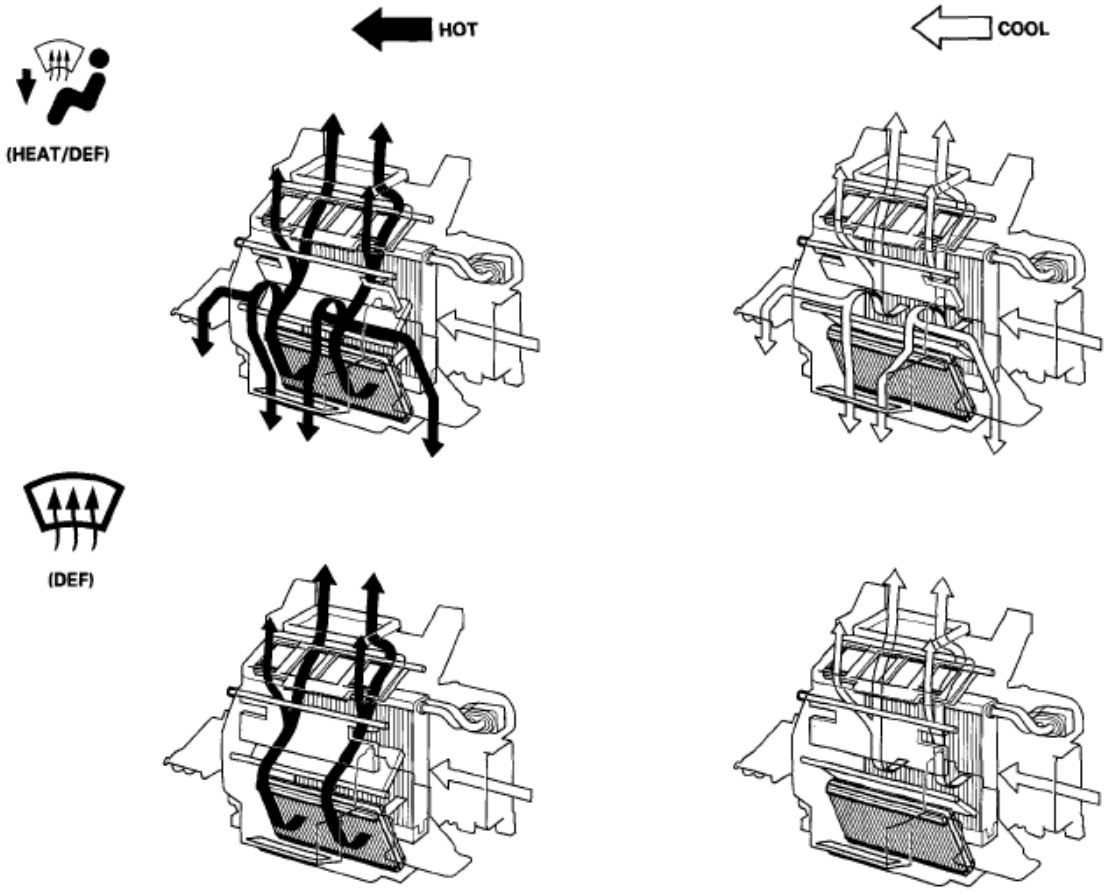


Fig. 12: Identifying Heating/Air Conditioning Door Positions (2 Of 2)

HVAC CONTROL UNIT INPUTS AND OUTPUTS

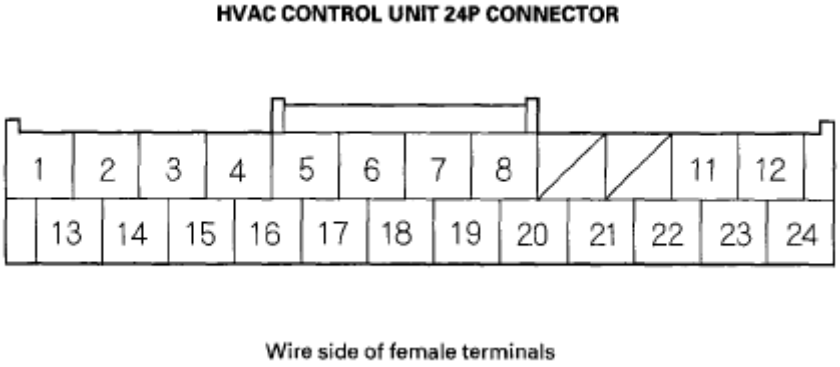


Fig. 13: Identifying HVAC Control Unit 24P Inputs And Outputs

HVAC CONTROL UNIT INPUTS AND OUTPUTS

Cavity	Wire color	Signal	

1	BLK	AIR MIX POTENTIAL +5V	OUTPUT
2	BRN	EVAPORATOR TEMPERATURE SENOR	OUTPUT
3	ORN	MODE 1	OUTPUT
4	LT GRN	MODE 2	OUTPUT
5	PUR	MODE 3	OUTPUT
6	BLU	MODE 4	OUTPUT
7	BLU	BLOWER FEEDBACK	INPUT
8	YEL	POWER TRANSISTOR CONTROL	OUTPUT
9	-	-	-
10	-	-	-
11	BRN	A/C SIGNAL	OUTPUT
12	RED	ILLUMI (-)	OUTPUT
13	RED	SENSOR COMMON GROUND	INPUT
14	WHT	MODE VENT	OUTPUT
15	GRN	MODE DEF	OUTPUT
16	ORN	RECIRCULATE	INPUT
17	PUR	FRESH	INPUT
18	GRY	AIR MIX POTENTIAL	OUTPUT
19	LT BLU	AIR MIX COOL	OUTPUT
20	PNK	AIR MIX HOT	OUTPUT
21	BLK	GROUND (G504)	OUTPUT
22	BRN	REAR WINDOW DEFOGGER RELAY	INPUT
23	LT GRN	IG2 (Power)	INPUT
24	GRY	ILLUMI (+)	INPUT

CIRCUIT DIAGRAM

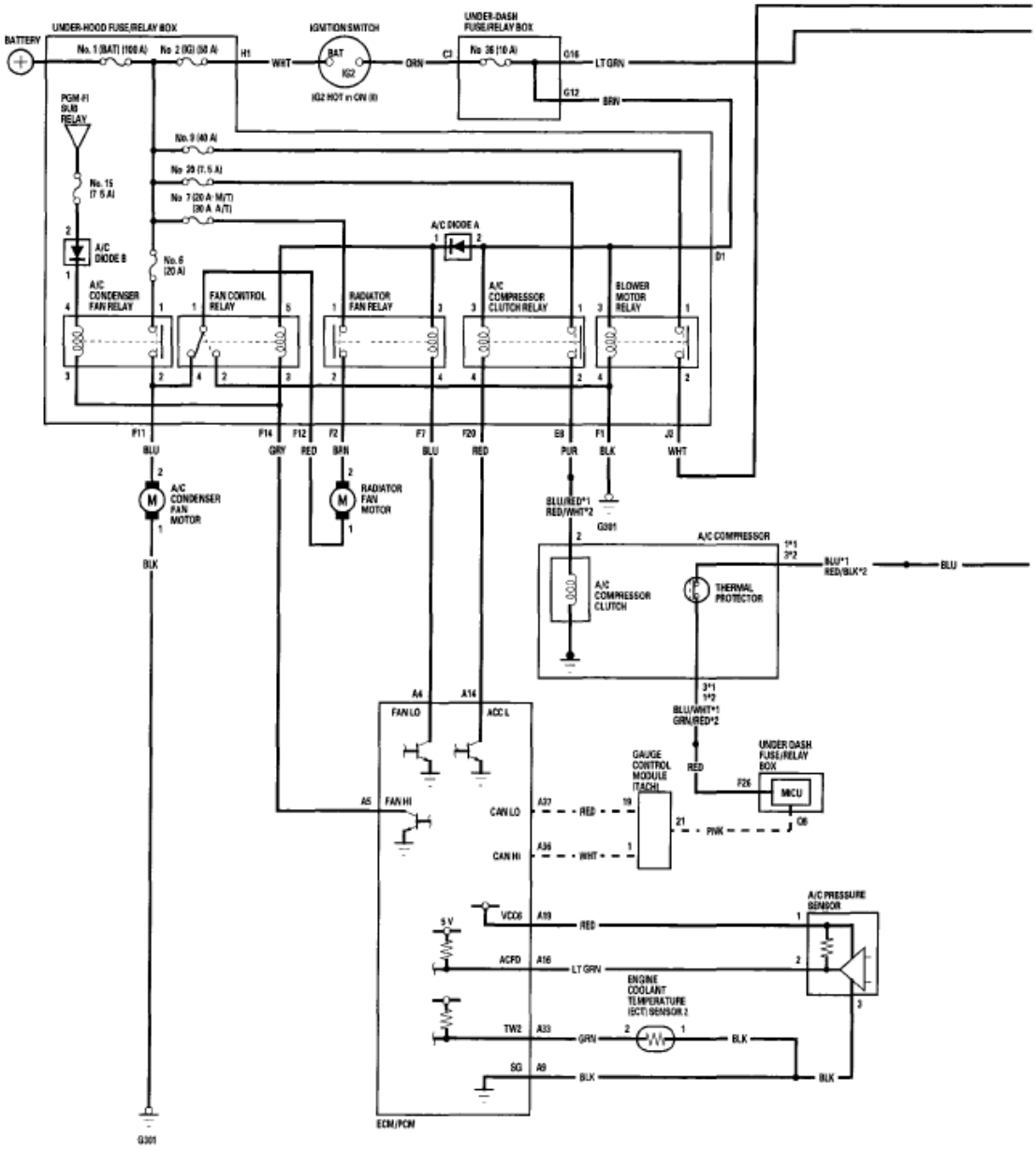


Fig. 14: Heating/Air Conditioning - Circuit Diagram (1 Of 2)

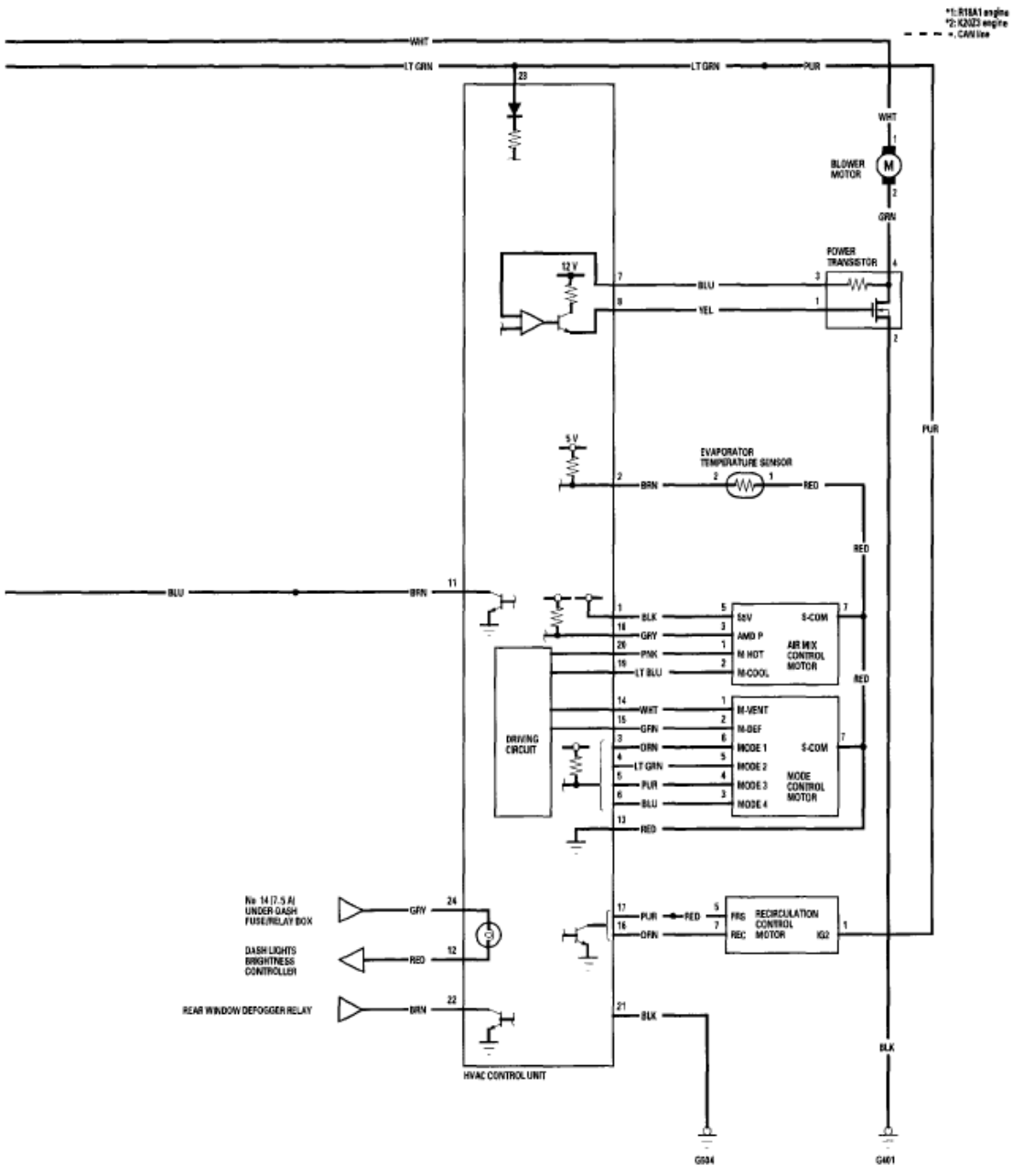


Fig. 15: Heating/Air Conditioning - Circuit Diagram (2 Of 2)

DTC TROUBLESHOOTING

DTC INDICATOR 1: AN OPEN IN THE AIR MIX CONTROL MOTOR CIRCUIT

1. Clear the DTC (see **CLEAR THE DTCS**).
2. Turn the ignition switch to LOCK (0), and then ON (II).
3. Do the self-diagnostic with the HVAC control unit (see **HOW TO USE THE**

SELF-DIAGNOSTIC FUNCTION).

4. Check for DTCs.

   Is DTC 1 indicated?

   YES - Go to step 5.

   NO - Intermittent failure, check for loose wires or poor connections on the air mix control motor circuit.

5. Turn the ignition switch to LOCK (0).
6. Test the air mix control motor (see **AIR MIX CONTROL MOTOR TEST**).

   Is the air mix control motor OK?

   YES - Go to step 7.

   NO - Replace the air mix control motor (see **AIR MIX CONTROL MOTOR TEST**).

7. Disconnect the air mix control motor 7P connector.
8. Disconnect the HVAC control unit 24P connector.
9. Check for continuity between the following terminals of the HVAC controlpanel 24P connector and the air mix control motor 7P connector.

CONTINUITY CHECK INDEX

24P	7P
1	5
13	7
18	3

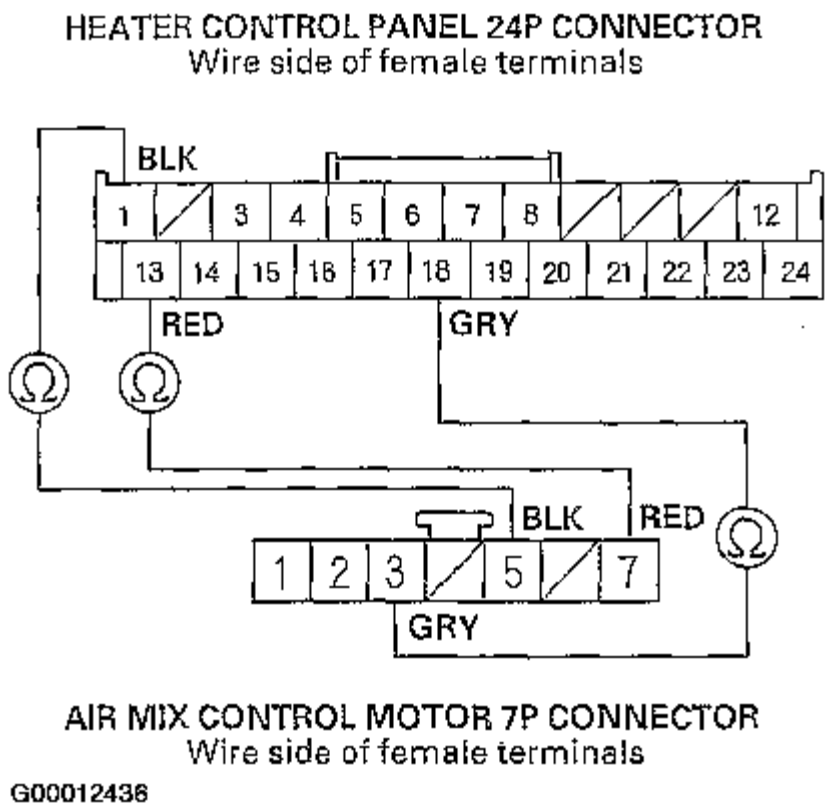


Fig. 16: Check Continuity Between HVAC Control Panel Connector & Air Mix Control Motor Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Check for loose wires or poor connections at the HVAC control panel 24P connector and at the air mix control motor 7P connector. If the connections are good, substitute a known-good HVAC control panel and recheck. If the symptom/indication goes away, replace the original HVAC control panel.

NO -Repair any open in the wires between the HVAC control panel and the air mix control motor.

DTC INDICATOR 2: A SHORT IN THE AIR MIX CONTROL MOTOR CIRCUIT

1. Clear the DTC (see **CLEAR THE DTCS**).
2. Turn the ignition switch to LOCK (0), and then ON (II).

3. Do the self-diagnostic with the HVAC control unit (see **HOW TO USE THE SELF-DIAGNOSTIC FUNCTION**).
4. Check for DTCs.

   Is DTC 2 indicated?

   YES - Go to step 5.

   NO - Intermittent failure.

5. Turn the ignition switch to LOCK (0).
6. Test the air mix control motor (see **AIR MIX CONTROL MOTOR TEST**).

   Is the air mix control motor OK?

   YES - Go to step 7.

   NO - Replace the air mix control motor (see **AIR MIX CONTROL MOTOR TEST**).

7. Disconnect the air mix control motor 7P connector.
8. Disconnect the HVAC control unit 24P connector.
9. Check for continuity between body ground and the HVAC control panel 24P connector terminals No. 1, 13 and 18 individually.

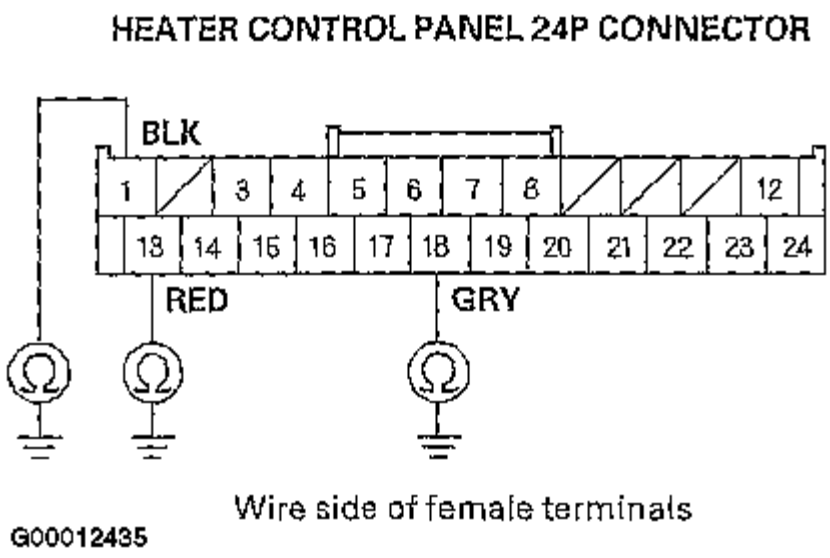


Fig. 17: Checking Continuity Between Ground & HVAC Control Panel Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Repair any short to body ground in the wires between the HVAC control panel and the air mix control motor.

NO -Go to step 10.

10. Check for continuity between the HVAC control panel 24P connector terminals as follows.

TERMINALS REFERENCE

From terminal	To terminals
1	13,18
13	18

Is there continuity between any of the terminals?

YES -Repair the short in the wires.

NO -Go to step 11.

11. Turn the ignition switch ON (II), and check the same terminals for voltage to body ground. See **Fig. 17**.

    Is there battery voltage?

    YES - Repair any short to power in the wires between the HVAC control unit and the air mix control motor. This short may also damage the HVAC control unit. Repair the short to power before replacing the HVAC control unit.

    NO - Substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit.

DTC INDICATOR 3: A PROBLEM IN THE AIR MIX CONTROL LINKAGE, DOOR, OR MOTOR

1. Clear the DTC (see **CLEAR THE DTCS**).
2. Turn the ignition switch to LOCK (0), and then ON (II).
3. Do the self-diagnostic with the HVAC control unit (see **HOW TO USE THE SELF-DIAGNOSTIC FUNCTION**).
4. Check for DTCs.

   Is DTC 3 indicated?

   YES - Go to step 5.

   NO - Intermittent failure.

5. Turn the ignition switch to LOCK (0).
6. Test the air mix control motor (see **AIR MIX CONTROL MOTOR TEST**).

   Is the air mix control motor OK?

   YES - Go to step 7.

   NO - Replace the air mix control motor (see **AIR MIX CONTROL MOTOR TEST**), or repair the air mix control linkage or door.

7. Check for continuity between the following terminals of the HVAC control

panel 24P connector and the air mix control motor 7P connector.

CONTINUITY CHECK INDEX

24P	7P
19	2
20	1

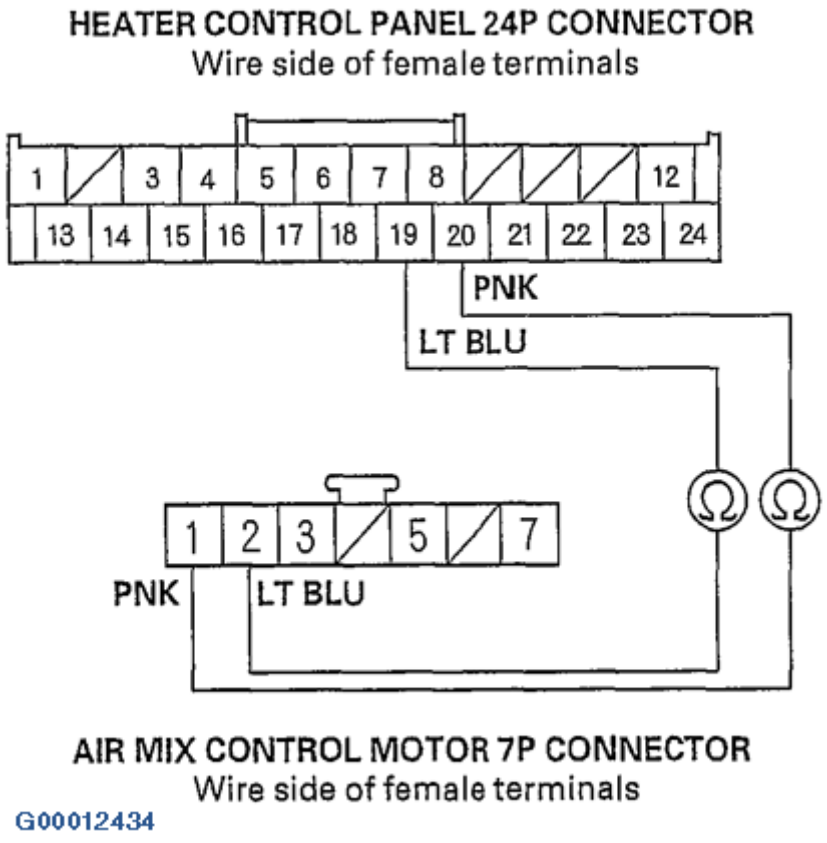


Fig. 18: Checking Continuity Between HVAC Control Panel Connector & Air Mix Control Motor Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 8.

NO -Repair any open in the wires between the HVAC control panel and the air mix control motor.

8. Check for continuity between body ground and the HVAC control panel 24P connector terminals No. 19 and 20 individually.

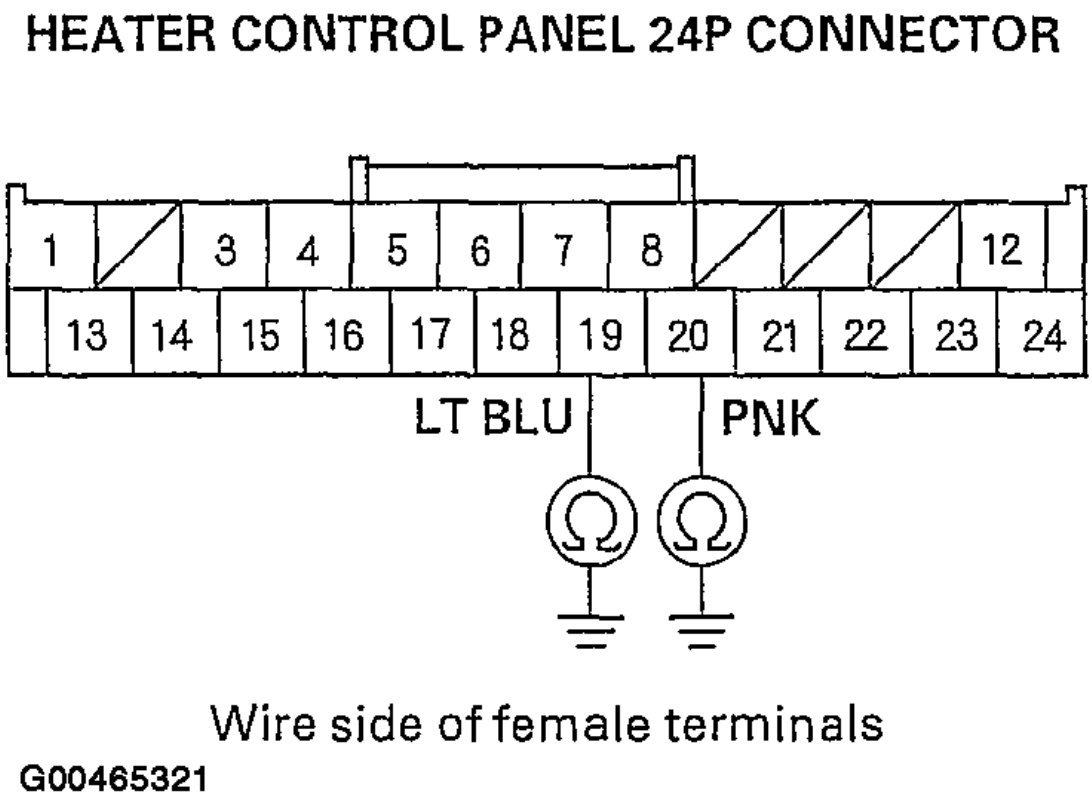


Fig. 19: Checking Continuity Between Ground & HVAC Control Panel Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Repair short to body ground in the wires between the HVAC control panel and the air mix control motor.

NO -Substitute a known-good HVAC control panel, and recheck. If the symptom/indication goes away, replace the original HVAC control panel.

DTC INDICATOR 4: AN OPEN OR SHORT IN THE MODE CONTROL MOTOR CIRCUIT

1. Clear the DTC (see **CLEAR THE DTCS**).

2. Turn the ignition switch to LOCK (0), and then ON (II).
3. Do the self-diagnostic with the HVAC control unit (see **HOW TO USE THE SELF-DIAGNOSTIC FUNCTION**).
4. Check for DTCs.

   Is DTC 4 indicated?

   YES - Go to step 5.

   NO - Intermittent failure, check for loose wires or poor connections on the mode control motor circuit.

5. Turn the ignition switch to LOCK (0).
6. Test the mode control motor (see **MODE CONTROL MOTOR TEST**).

   Is the mode control motor OK?

   YES - Go to step 7.

   NO - Replace the mode control motor (see **AIR MIX CONTROL MOTOR REPLACEMENT**).

7. Disconnect the mode control motor 7P connector.
8. Disconnect the HVAC control unit 24P connector.
9. Check for continuity between the following terminals of the heater control panel 24P connector and the mode control motor 7P connector.

CONTINUITY CHECK INDEX

24P	7P
3	6
4	5
5	4
6	3
13	7

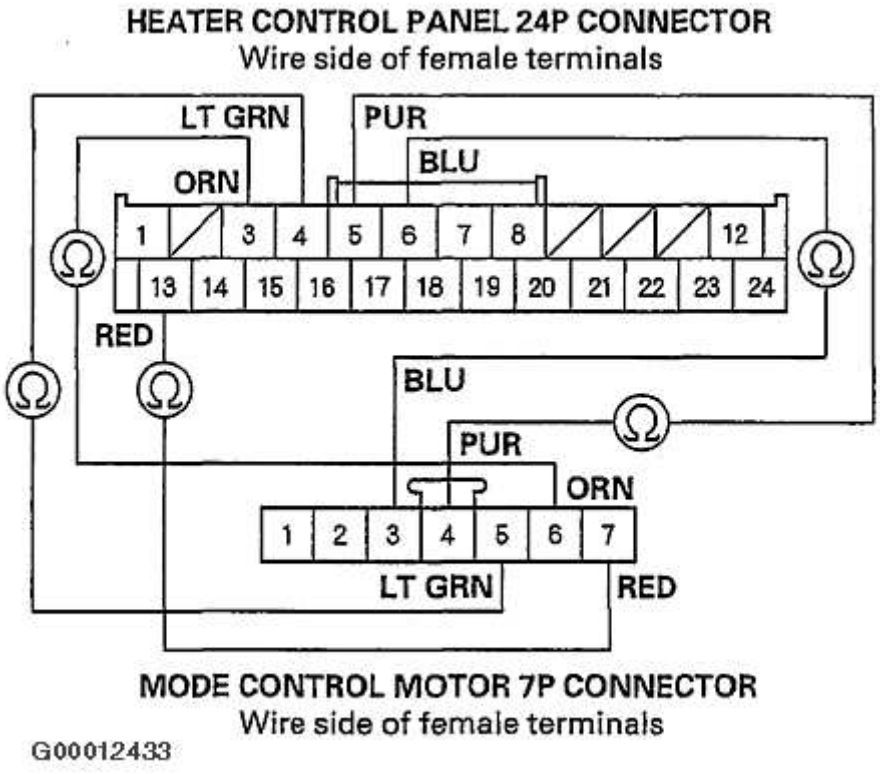


Fig. 20: Checking Continuity Between HVAC Control Panel Connector & Mode Control Motor Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 10.

NO -Repair any open in the wires between the HVAC control panel and the mode control motor.

10. Check for continuity between body ground and the heater control panel 24P connector terminals No. 3, 4, 5, 6, and 13 individually.

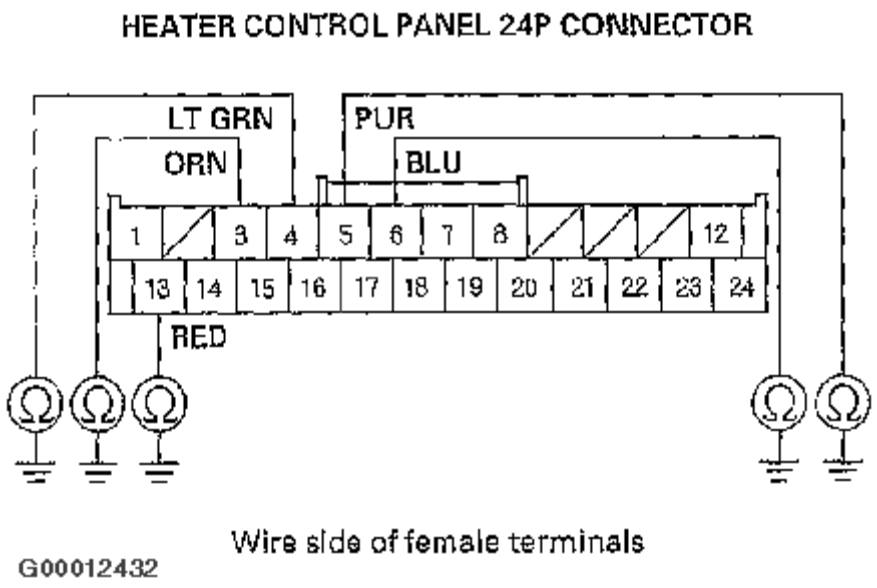


Fig. 21: Checking Continuity Between Ground & HVAC Control Panel Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Repair any short to body ground in the wires between the HVAC control panel and the mode control motor.

NO -Go to step 11.

11. Check for continuity between the HVAC control unit 24P connector terminals as follows.

HVAC CONTROL UNIT 24P CONNECTOR TERMINALS

From terminal	To terminals
3	4, 5, 6, 13, 14
4	5, 6, 13, 14
5	6, 13, 14
6	13, 14

Is there continuity between any of the terminals?

YES - Repair the short in the wires.

NO - Go to step 12.

12. Turn the ignition switch ON (II), and check the same terminals for voltage to body ground. See **Fig. 21**.

    Is there any voltage?

    YES -Repair any short to power in the wires between the HVAC control panel and the mode control motor. This short may also damage the HVAC control panel. Repair the short to power before replacing the HVAC control panel.

    NO -Check for loose wires or poor connections at the HVAC control panel 24P connector and at the mode control motor 7P connector. If the connections are good, substitute a known-good HVAC control panel, and recheck. If the symptom/indication goes away, replace the original HVAC control panel.

DTC INDICATOR 5: A PROBLEM IN THE MODE CONTROL LINKAGE, DOORS, OR MOTOR

1. Clear the DTC (see **CLEAR THE DTCS**).
2. Turn the ignition switch to LOCK (0), and then ON (II).
3. Do the self-diagnostic with the HVAC control unit (see **HOW TO USE THE SELF-DIAGNOSTIC FUNCTION**).
4. Check for DTCs.

   Is DTC 5 indicated?

   YES - Go to step 5.

   NO - Intermittent failure.

5. Turn the ignition switch to LOCK (0).
6. Test the mode control motor (see **MODE CONTROL MOTOR TEST**).

   Is the mode control motor OK?

   YES - Go to step 7.

NO - Replace the mode control motor (see **AIR MIX CONTROL MOTOR REPLACEMENT**), or repair the mode control linkage or doors.

7. Check for continuity between the following terminals of the HVAC control panel 24P connector and the mode control motor 7P connector.

CONTINUITY CHECK INDEX

24P	7P
14	1
15	2

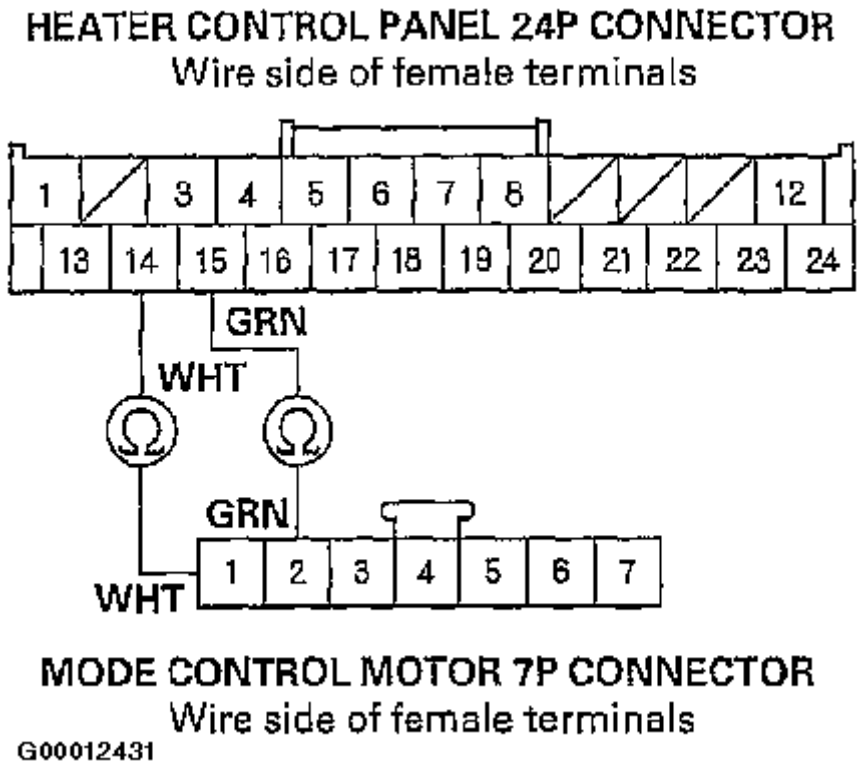


Fig. 22: Checing Continuity Between HVAC Control Connector & Mode Control Motor Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 8.

NO -Repair any open in the wires between the HVAC control panel and the mode control motor.

8. Check for continuity between body ground and the HVAC control panel 24P connector terminals No. 14 and 15 individually.

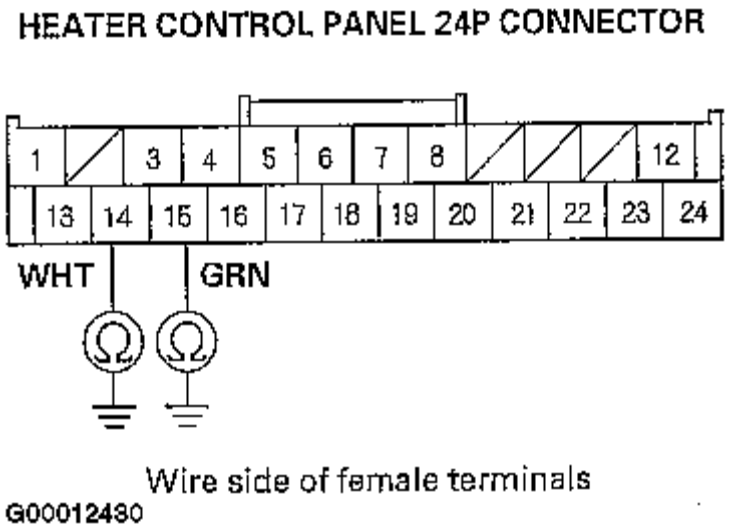


Fig. 23: Checking Continuity Between Ground & HVAC Control Panel Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Repair short to body ground in the wires between the HVAC control panel and the mode control motor.

NO -Substitute a known-good HVAC control panel, and recheck. If the symptom/indication goes away, replace the original HVAC control panel.

DTC INDICATOR 6: A PROBLEM IN THE BLOWER MOTOR CIRCUIT

1. Clear the DTC (see **CLEAR THE DTCS**).
2. Turn the ignition switch to LOCK (0), and then ON (II).
3. Do the self-diagnostic with the HVAC control unit (see **HOW TO USE THE SELF-DIAGNOSTIC FUNCTION**).

4. Check for DTCs.

   Is DTC 6 indicated?

   YES - Go to step 5.

   NO - Intermittent failure, check for loose wires or poor connections on the blower motor circuit.

5. Turn the ignition switch to LOCK (0).
6. Check the No. 9 (40 A) fuse in the under-hood fuse/relay box, and the No. 36 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES - Go to step 7.

   NO - Replace the fuses, and recheck. If the fuses blow again, check for a short in the No. 9 (40 A) and No. 36 (10 A) fuses circuit.

7. Connect the blower motor 2P connector terminal No. 2 to body ground with a jumper wire.

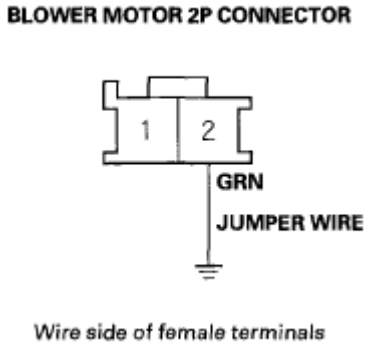


Fig. 24: Connecting Blower Motor 2P Connector Terminal No. 2 To Body Ground With Jumper Wire

8. Turn the ignition switch ON (II).

   Does the blower motor run?

YES - Go to step 9.

NO - Go to step 25.

9. Turn the ignition switch to LOCK (0).
10. Disconnect the jumper wire.
11. Disconnect the power transistor 4P connector.
12. Check for continuity between the power transistor 4P connector terminal No. 2 and body ground.

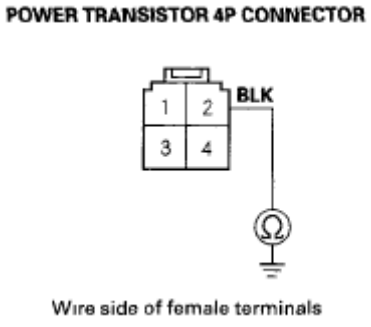


Fig. 25: Checking Continuity Between Power Transistor 4P Connector Terminal No. 2 And Body Ground

Is there continuity?

YES - Go to step 13.

NO - Check for an open in the wire between the power transistor and body ground. If the wire is OK, check for poor ground at G401 (see **CONNECTOR TO HARNESS INDEX**).

13. Connect the power transistor 4P connector terminals No. 2 and No. 4 with a jumper wire.

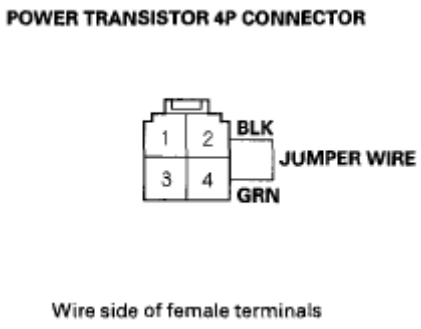


Fig. 26: Connecting Power Transistor 4P Connector Terminals No. 2 And No. 4 With Jumper Wire

14. Turn the ignition switch ON (II).

    Does the blower motor run at high speed?

    YES - Go to step 15.

    NO - Repair open in the GRN wire between the power transistor and the blower motor.

15. Turn the ignition switch to LOCK (0).
16. Disconnect the jumper wire.
17. Disconnect the HVAC control unit 24P connector.
18. Check for continuity between body ground and the HVAC control unit 24P connector terminals No. 7 and No. 8 individually.

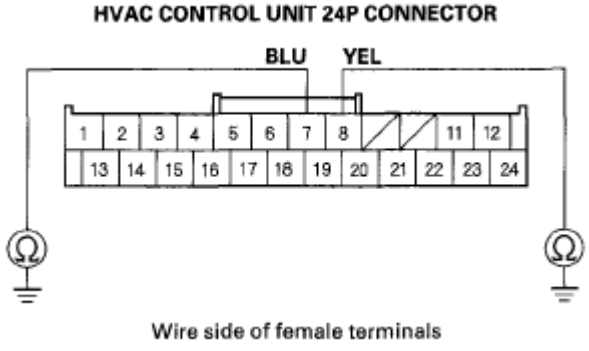


Fig. 27: Checking Continuity Between Body Ground And HVAC Control Unit 24P Connector Terminals No. 7 And No. 8

Is there continuity?

YES - Repair any short to body ground in the wires between the HVAC control unit and the power transistor.

NO - Go to step 19.

19. Check for continuity between the following terminals of the HVAC control unit 24P connector and the power transistor 4P connector.

HVAC CONTROL UNIT 24P CONNECTOR AND POWER TRANSISTOR 4P CONNECTOR

24P	4P
No. 7	No. 3
No. 8	No. 1

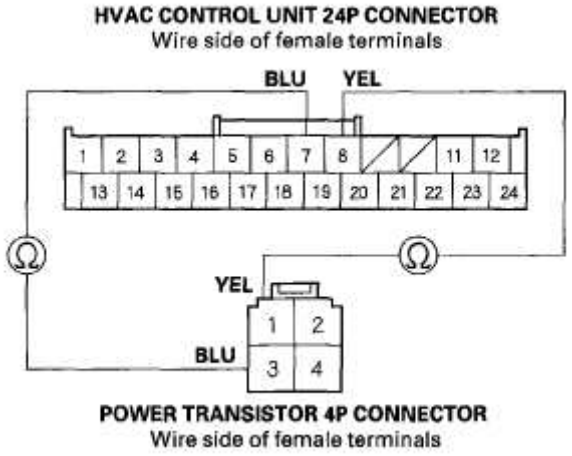

HVAC CONTROL UNIT 24P CONNECTOR
Wire side of female terminals
BLU
YEL
1 2 3 4 5 6 7 8 11 12
13 14 15 16 17 18 19 20 21 22 23 24
YEL
1 2
BLU
3 4
POWER TRANSISTOR 4P CONNECTOR
Wire side of female terminals

Fig. 28: Checking Continuity Between HVAC Control Unit 24P And Power Transistor 4P Connector Terminals

Is there continuity?

YES - Go to step 20.

NO - Repair any open in the wires between the HVAC control unit and the power transistor.

20. Turn the ignition switch ON (II).

21. Measure the voltage between body ground and the HVAC control unit 24P connector terminals No. 7 and No. 8 individually.

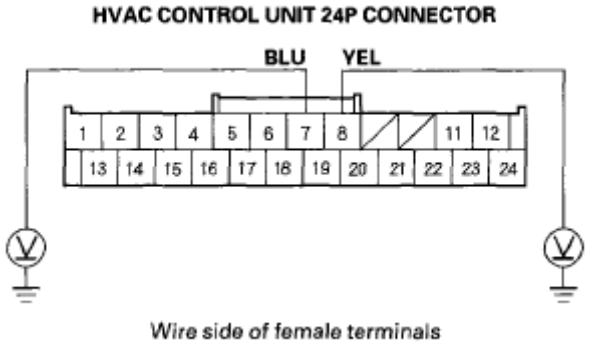


Fig. 29: Measuring Voltage Between Body Ground And HVAC Control Unit 24P Terminals No. 7 And No. 8

Is there voltage?

YES - Repair short to power in the wires.

NO - Go to step 22.

22. Turn the ignition switch to LOCK (0).
23. Reconnect the HVAC control unit 24P connector.
24. Test the power transistor (see **POWER TRANSISTOR TEST**).

Is the power transistor OK?

YES - Check for loose wires or poor connections at the HVAC control unit 24P connector and at the power transistor 4P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit.

NO - Replace the power transistor (see **POWER TRANSISTOR TEST**).

25. Turn the ignition switch to LOCK (0).
26. Disconnect the jumper wire.
27. Disconnect the blower motor 2P connector.

28. Turn ignition ON (II).
29. Measure the voltage between the blower motor 2P connector terminal No. 1 and body ground.

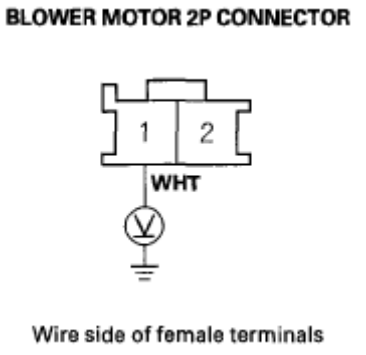


Fig. 30: Measuring Voltage Between Blower Motor 2P Connector Terminal No. 1 And Body Ground

Is there battery voltage?

YES - Replace the blower motor (see **BLOWER UNIT COMPONENT REPLACEMENT**).

NO - Go to step 27.

30. Turn the ignition switch to LOCK (0).
31. Remove the blower motor relay from the under-hood fuse/relay box, and test it (see **POWER RELAY TEST**).

Is the relay OK?

YES - Go to step 29.

NO - Replace the blower motor relay.

32. Measure the voltage between the blower motor relay 4P socket terminal No. 1 and body ground.

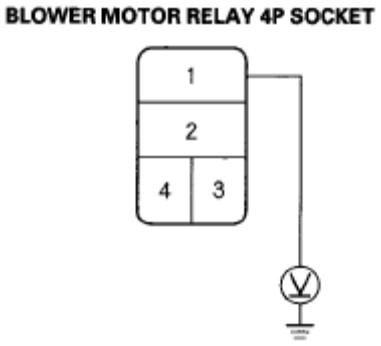


Fig. 31: Measuring Voltage Between Blower Motor Relay 4P Socket Terminal No. 1 And Body Ground

Is there battery voltage?

YES - Go to step 30.

NO - Replace the under-hood fuse/relay box (see **REMOVAL AND INSTALLATION**).

33. Turn the ignition switch ON (II).
34. Measure the voltage between the blower motor relay 4P socket terminal No. 3 and body ground.

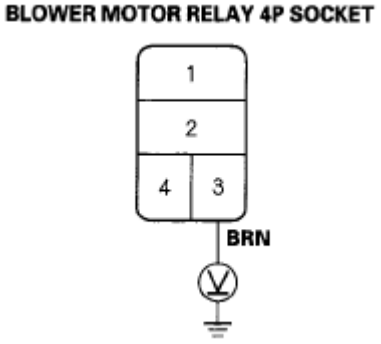


Fig. 32: Measuring Voltage Between Blower Motor Relay 4P Socket Terminal No. 3 And Body Ground

Is there battery voltage?

YES - Go to step 32.

NO - Repair open in the wire between the No. 36 (10 A) fuse in the under-dash fuse/relay box and the blower motor relay.

35. Turn the ignition switch to LOCK (0).
36. Check for continuity between the blower motor relay 4P socket terminal No. 4 and body ground.

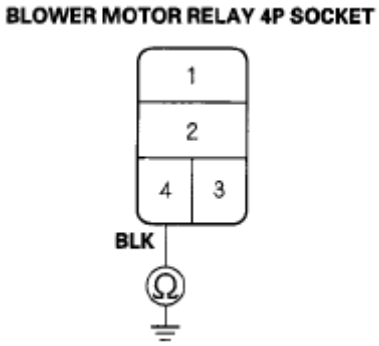


Fig. 33: Checking Continuity Between Blower Motor Relay 4P Socket Terminal No. 4 And Body Ground

Is there continuity?

YES - Repair open in the WHT wire between the blower motor relay and the blower motor.

NO - Check for an open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor ground at G301 (see **CONNECTOR TO HARNESS INDEX**).

DTC INDICATOR 7: HVAC CONTROL UNIT INTERNAL ERROR

NOTE: Check the battery condition (see BATTERY TEST) and the charging system (see CHARGING SYSTEM INDICATOR CIRCUIT TROUBLESHOOTING).

1. Clear the DTC. (see **CLEAR THE DTCS**).
2. Turn the ignition switch to LOCK (0), and then ON (II).
3. Do the self-diagnostic with the HVAC control unit. (see **HOW TO USE THE SELF-DIAGNOSTIC FUNCTION**).

4. Check for DTCs.

   Is DTC 7 indicated?

   YES - The HVAC control unit is faulty, replace the HVAC control unit (see **HVAC CONTROL UNIT REMOVAL AND INSTALLATION**).

   NO - Intermittent failure, the HVAC control unit is OK at this time.

DTC INDICATOR 8: AN OPEN IN THE EVAPORATOR TEMPERATURE SENSOR CIRCUIT

1. Clear the DTC (see **CLEAR THE DTCS**).
2. Turn the ignition switch to LOCK (0), and then ON (II).
3. Do the self-diagnostic with the HVAC control unit. (see **HOW TO USE THE SELF-DIAGNOSTIC FUNCTION**).
4. Check for DTCs.

   Is DTC 8 indicated?

   YES - Go to step 5.

   NO - Intermittent failure, check for loose wires or poor connections on the evaporator temperature sensor circuit.

5. Turn the ignition switch to LOCK (0).
6. Remove the evaporator temperature sensor (see **EVAPORATOR CORE REPLACEMENT**) and test it (see **EVAPORATOR TEMPERATURE SENSOR TEST**).

   Is the evaporator temperature sensor OK?

   YES - Go to step 7.

   NO - Replace the evaporator temperature sensor (see **EVAPORATOR CORE REPLACEMENT**).

7. Disconnect the HVAC control unit 24P connector.

8. Check for continuity between the HVAC control unit 24P connector terminal No. 2 and the evaporator temperature sensor 2P connector terminal No. 2.

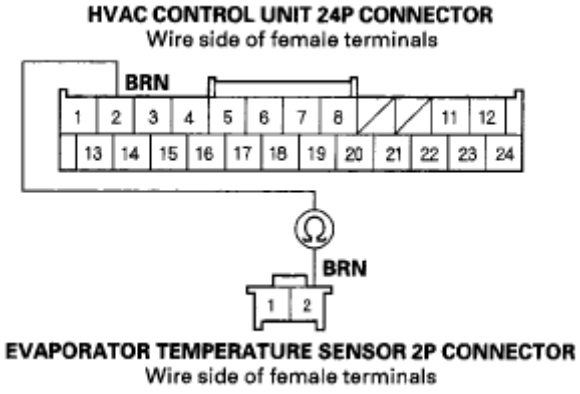

HVAC CONTROL UNIT 24P CONNECTOR
Wire side of female terminals
BRN
1 2 3 4 5 6 7 8 11 12
13 14 15 16 17 18 19 20 21 22 23 24
BRN
1 2
EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Fig. 34: Checking Continuity Between HVAC Control Unit 24P Terminal No. 2 And Evaporator Temperature Sensor 2P Terminal No. 2

Is there continuity?

YES - Go to step 9.

NO - Repair open in the wire between the HVAC control unit and the evaporator temperature sensor.

9. Check for continuity between the HVAC control unit 24P connector terminal No. 13 and the evaporator temperature sensor 2P connector terminal No. 1.

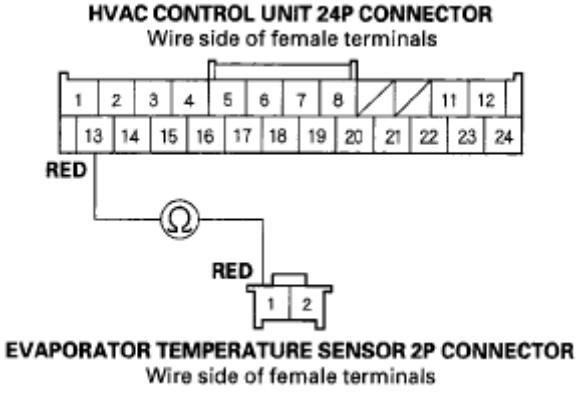

HVAC CONTROL UNIT 24P CONNECTOR
Wire side of female terminals
1 2 3 4 5 6 7 8 11 12
13 14 15 16 17 18 19 20 21 22 23 24
RED
RED
1 2
EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Fig. 35: Checking Continuity Between HVAC Control Unit 24P Terminal No. 13 And Evaporator Temperature Sensor 2P Terminal No. 1

Is there continuity?

YES - Check for loose wires or poor connections at the HVAC control unit 24P connector and at the evaporator temperature sensor 2P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit.

NO - Repair open in the wire between the HVAC control unit and the evaporator temperature sensor.

DTC INDICATOR 9: A SHORT IN THE EVAPORATOR TEMPERATURE SENSOR CIRCUIT

1. Clear the DTC (see **CLEAR THE DTCS**).
2. Turn the ignition switch to LOCK (0), and then ON (II).
3. Do the self-diagnostic with the HVAC control unit (see **HOW TO USE THE SELF-DIAGNOSTIC FUNCTION**).
4. Check for DTCs.

   Is DTC 9 indicated?

   YES - Go to step 4.

   NO - Intermittent failure.

5. Turn the ignition switch to LOCK (0).
6. Remove the evaporator temperature sensor (see **EVAPORATOR CORE REPLACEMENT**) and test it (see **EVAPORATOR TEMPERATURE SENSOR TEST**).

   Is the evaporator temperature sensor OK?

   YES - Go to step 7.

   NO - Replace the evaporator temperature sensor (see **EVAPORATOR CORE REPLACEMENT**).

7. Disconnect the HVAC control unit 24P connector.
8. Check for continuity between body ground and the HVAC control unit 24P connector terminals No. 2 and No. 13 individually.

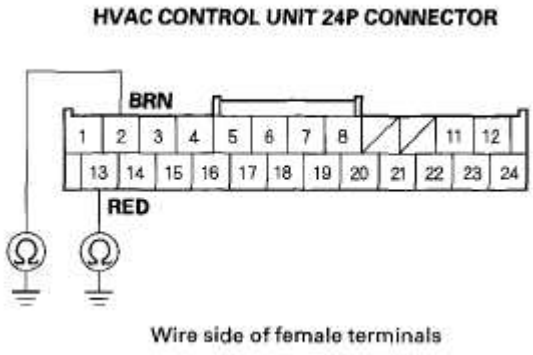


Fig. 36: Checking Continuity Between Body Ground And HVAC Control Unit 24P Connector Terminals No. 2 And No. 13

Is there continuity?

YES - Repair short to body ground in the wires between the HVAC control unit and the evaporator temperature sensor.

NO - Go to step 9.

9. Check for continuity between the HVAC control unit 24P connector terminals No. 2 and No. 13.

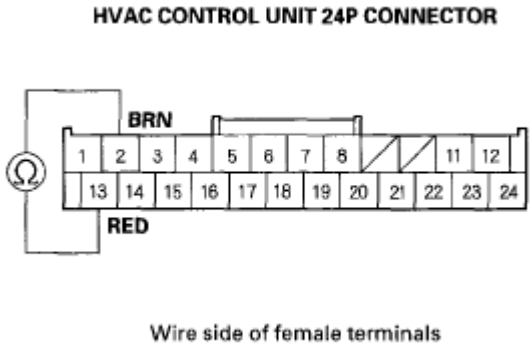


Fig. 37: Checking Continuity Between HVAC Control Unit 24P Connector Terminals No. 2 And No. 13

Is there continuity?

YES - Repair short in the wires between the HVAC control unit and the evaporator temperature sensor.

NO - Substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit.

RECIRCULATION CONTROL MOTOR CIRCUIT TROUBLESHOOTING

1. Check the No. 36 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES - Go to step 2.

   NO - Replace the fuse, and recheck. If the fuse blows again, check for a short in the No. 36 (10 A) fuse circuit.

2. Disconnect the recirculation control motor 7P connector.
3. Turn the ignition switch ON (II).
4. Measure the voltage between the recirculation control motor 7P connector terminal No. 1 and body ground.

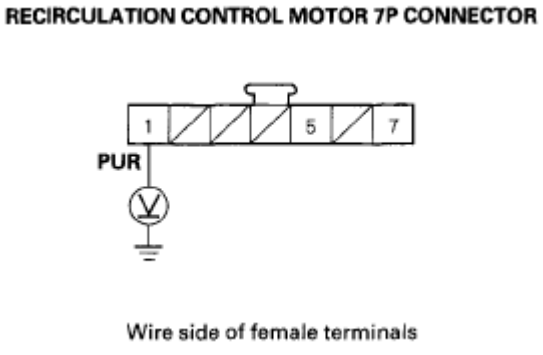


Fig. 38: Measuring Voltage Between Recirculation Control Motor 7P Connector Terminal No. 1 And Body Ground

Is there battery voltage?

YES - Go to step 5.

NO - Repair open in the wire between the No. 36 (10 A) fuse in the under-dash fuse/relay box and the recirculation control motor.

5. Turn the ignition switch to LOCK (0).
6. Test the recirculation control motor (see **RECIRCULATION CONTROL MOTOR TEST**).

   Is the recirculation control motor OK?

   YES - Go to step 7.

   NO - Replace the recirculation control motor (see **RECIRCULATION CONTROL MOTOR REPLACEMENT**), or repair the recirculation control linkage or door.

7. Disconnect the HVAC control unit 24P connector.
8. Check for continuity between body ground and the HVAC control unit 24P connector terminals No. 16 and No. 17 individually.

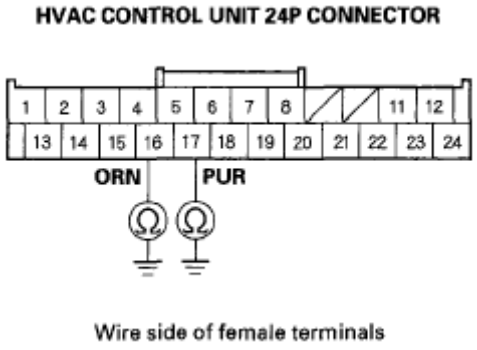


Fig. 39: Checking Continuity Between Body Ground And HVAC Control Unit 24P Connector Terminals No. 16 And No. 17

Is there continuity?

YES - Repair any short to body ground in the wires between the HVAC control unit and the recirculation control motor.

NO - Go to step 9.

9. Turn the ignition switch ON (II), and check the same terminals for voltage to body ground.

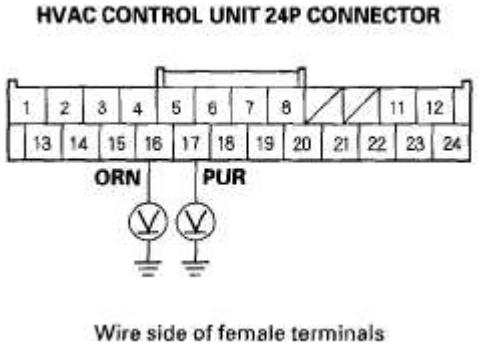


Fig. 40: Checking Voltage Between Body Ground And HVAC Control Unit 24P Connector Terminals No. 16 And No. 17

Is there any voltage?

YES - Repair any short to power in the wires between the HVAC control unit and the recirculation control motor. This short may also damage the HVAC control unit. Repair the short to power before replacing the HVAC control unit.

NO - Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Check for continuity between the following terminals of the HVAC control unit 24P connector and the recirculation control motor 7P connector.

HVAC CONTROL UNIT 24P CONNECTOR AND RECIRCULATION CONTROL MOTOR 7P CONNECTOR

24P	7P
No. 16	No. 7
No. 17	No. 5

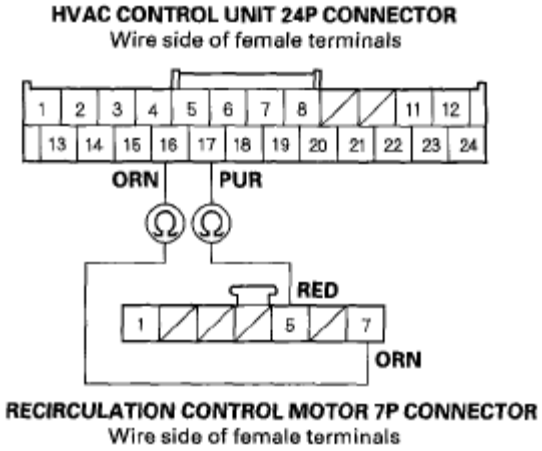

HVAC CONTROL UNIT 24P CONNECTOR
Wire side of female terminals
1 2 3 4 5 6 7 8 11 12
13 14 15 16 17 18 19 20 21 22 23 24
ORN
PUR
RED
1 5 7
ORN
RECIRCULATION CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Fig. 41: Checking Continuity Between HVAC Control Unit 24P And Recirculation Control Motor 7P Connector

Is there continuity?

YES - Check for loose wires or poor connections at the HVAC control unit 24P connector and at the recirculation control motor 7P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit.

NO - Repair any open in the wires between the HVAC control unit and the recirculation control motor.

HVAC CONTROL POWER AND GROUND CIRCUIT TROUBLESHOOTING

1. Check the No. 36 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES - Go to step 2.

   NO - Replace the fuse, and recheck. If the fuse blows again, check for a short in the No. 36 (10 A) fuse circuit.

2. Disconnect the HVAC control unit 24P connector.
3. Turn the ignition switch ON (II).

4. Measure the voltage between the HVAC control unit 24P connector terminal No. 23 and body ground.

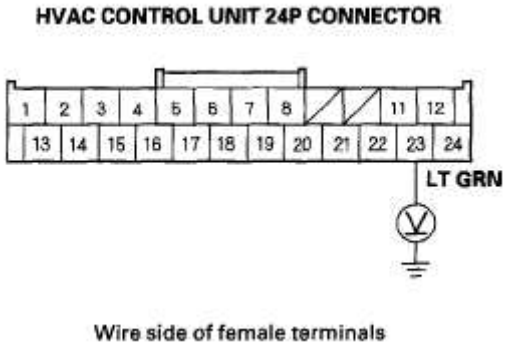


Fig. 42: Measuring Voltage Between HVAC Control Unit 24P Connector Terminal No. 23 And Body Ground

Is there battery voltage?

YES - Go to step 5.

NO - Repair open in the wire between the No. 36 (10 A) fuse in the under-dash fuse/relay box and the HVAC control unit.

5. Turn the ignition switch to LOCK (0).
6. Check for continuity between the HVAC control unit 24P connector terminal No. 21 and body ground.

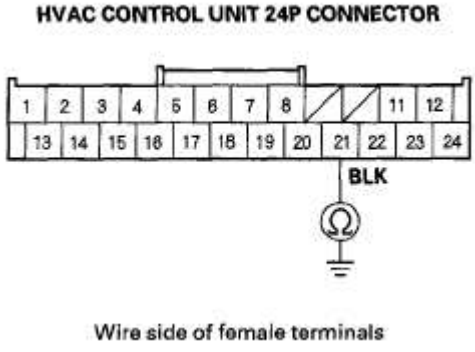


Fig. 43: Checking Continuity Between HVAC Control Unit 24P Connector Terminal No. 21 And Body Ground

Is there continuity?

YES - Check for loose wires or poor connections at the HVAC control unit 24P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck.

NO - Check for an open in the wire between the HVAC control unit and body ground. If the wire is OK, check for poor ground at G504 (see **CONNECTOR TO HARNESS INDEX**).

RADIATOR AND A/C CONDENSER FAN LOW SPEED CIRCUIT TROUBLESHOOTING

NOTE:

- **Do not use this troubleshooting procedure if the A/C compressor is inoperative. Refer to the SYMPTOM TROUBLESHOOTING INDEX.**
- **Before performing symptom troubleshooting, check for powertrain DTCs, R18A1 engine (see GENERAL TROUBLESHOOTING INFORMATION), K20Z3 engine (see GENERAL TROUBLESHOOTING INFORMATION).**

1. Check the No. 7 (20 A: M/T) or (30 A: A/T) fuse in the under-hood fuse/relay box, and the No. 36 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES - Go to step 2.

   NO - Replace the fuses, and recheck. If the fuses blow again, check for a short in the No. 7 (20 A: M/T) or (30 A: A/T) and No. 36 (10 A) fuses circuit.

2. Remove the radiator fan relay from the under-hood fuse/relay box, and test it (see **REMOVAL AND INSTALLATION**).

   Is the relay OK?

   YES - Go to step 3.

   NO - Replace the radiator fan relay.

3. Connect the HDS to the DLC.
4. Turn the ignition switch ON (II).
5. Turn on the A/C on the HVAC control unit.
6. Check the FAN LOW CTRL in the PGM-FI Data List with the HDS.

   Is the FAN LOW CTRL on?

   YES - Go to step 7.

   NO - Substitute a known-good ECM/PCM, R18A1 engine (see **SUBSTITUTING THE ECM/PCM**), K20Z3 engine (see **SUBSTITUTING THE ECM**), and retest. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM, R18A1 engine (see **ECM/PCM REPLACEMENT**), K20Z3 engine (see **ECM REPLACEMENT**).

7. Measure the voltage between the radiator fan relay 4P socket terminal No. 1 and body ground.

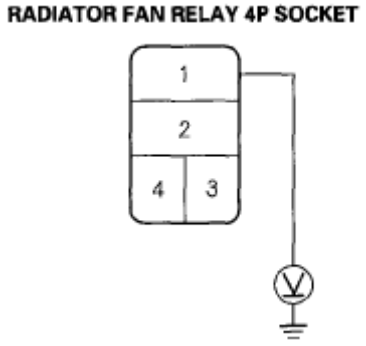


Fig. 44: Measuring Voltage Between Radiator Fan Relay 4P Socket Terminal No. 1 And Body Ground

Is there battery voltage?

YES - Go to step 8.

NO - Replace the under-hood fuse/relay box (see **REMOVAL AND INSTALLATION**).

8. Connect the radiator fan relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

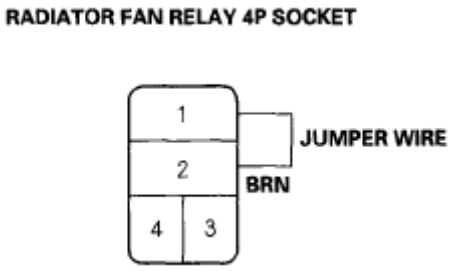


Fig. 45: Connecting Radiator Fan Relay 4P Socket Terminals No. 1 And No. 2 With Jumper Wire

Do the A/C condenser and radiator fans run on low?

YES - Go to step 9.

NO - Go to step 20.

9. Turn the ignition switch to LOCK (0).
10. Disconnect the jumper wire.
11. Turn the ignition switch ON (II).
12. Measure the voltage between the radiator fan relay 4P socket terminal No. 3 and body ground.

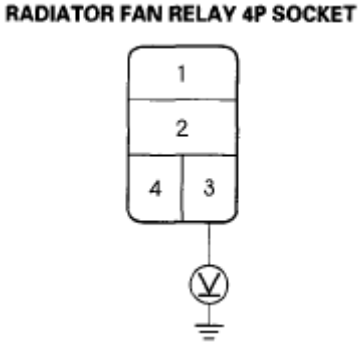


Fig. 46: Measuring Voltage Between Radiator Fan Relay 4P Socket Terminal No. 3 And Body Ground

Is there battery voltage?

YES - Go to step 12.

NO - Go to step 38.

13. Turn the ignition switch to LOCK (0).
14. Reinstall the radiator fan relay.
15. Jump the SCS line with the HDS.

NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.

16. Disconnect ECM/PCM connector A (44P).
17. Connect the ECM/PCM connector A (44P) terminal No. 4 to body ground with a jumper wire.

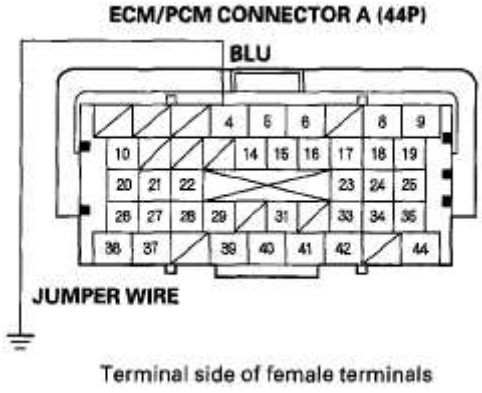


Fig. 47: Connecting ECM/PCM Connector A (44P) Terminal No. 4 To Body Ground With Jumper Wire

18. Turn the ignition switch ON (II).

Do the A/C condenser and radiator fans run on low?

YES - Check for loose wires or poor connections at ECM/PCM connector A (44P) terminal No. 4. If the connections are good, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM/PCM, R18A1 engine (see **ECM/PCM REPLACEMENT**),

K20Z3 engine (see **ECM REPLACEMENT**).

NO - Repair open in the wire between the radiator fan relay and the ECM/PCM.

19. Turn the ignition switch to LOCK (0).
20. Disconnect the jumper wire.
21. Reinstall the radiator fan relay.
22. Disconnect the radiator fan 2P connector.
23. Turn the ignition switch ON (II), then set the A/C button and fan control dial ON.
24. Measure the voltage between the radiator fan 2P connector terminal No. 2 and body ground.

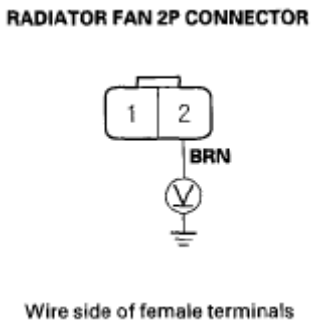


Fig. 48: Measuring Voltage Between Radiator Fan 2P Connector Terminal No. 2 And Body Ground

Is there battery voltage?

YES - Go to step 23.

NO - Repair open in the wire between the radiator fan relay and the radiator fan.

25. Set the A/C button and fan control dial OFF, then turn the ignition switch to LOCK (0).
26. Reconnect the radiator fan 2P connector.
27. Connect the radiator fan 2P connector terminal No. 1 to body ground with a

jumper wire.

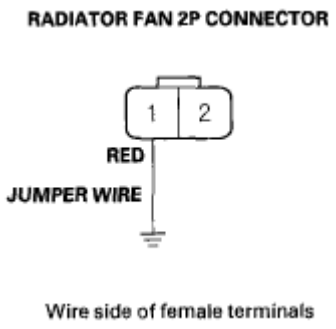


Fig. 49: Connecting Radiator Fan 2P Connector Terminal No. 1 To Body Ground With Jumper Wire

28. Turn the ignition switch ON (II), then set the A/C button and fan control dial ON.

    Does the radiator fan run?

    YES - Go to step 27.

    NO - Replace the radiator fan motor, R18A1 engine (see **RADIATOR AND FAN REPLACEMENT**), K20Z3 engine (see **RADIATOR AND FAN REPLACEMENT**).

29. Set the A/C button and fan control dial OFF, then turn the ignition switch to LOCK (0).
30. Disconnect the jumper wire.
31. Remove the fan control relay from the under-hood relay box, and test it (see **REMOVAL AND INSTALLATION**).

    Is the relay OK?

    YES - Go to step 30.

    NO - Replace the fan control relay.

32. Turn the ignition switch ON (II), then set the A/C button and fan control dial ON.

33. Measure the voltage between the fan control relay 5P socket terminal No. 1 and body ground.

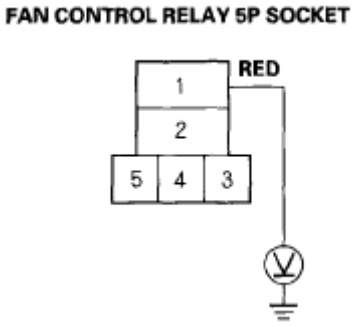


Fig. 50: Measuring Voltage Between Fan Control Relay 5P Socket Terminal No. 1 And Body Ground

Is there battery voltage?

YES - Go to step 32.

NO - Repair open in the wire between the radiator fan and the fan control relay.

34. Set the A/C button and fan control dial OFF, then turn the ignition switch to LOCK (0).
35. Disconnect the A/C condenser fan 2P connector.
36. Check for continuity between the fan control relay 5P socket terminal No. 4 and the A/C condenser fan 2P connector terminal No. 2.

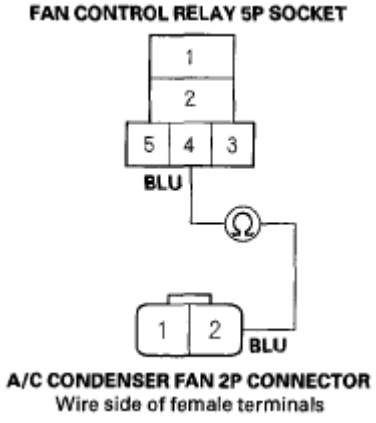


Fig. 51: Checking Continuity Between Fan Control Relay 5P Socket Terminal No. 4 And A/C Condenser Fan 2P Terminal No. 2

Is there continuity?

YES - Go to step 35.

NO - Repair open in the wire between the fan control relay and the A/C condenser fan.

37. Check for continuity between the A/C condenser fan 2P connector terminal No. 1 and body ground.

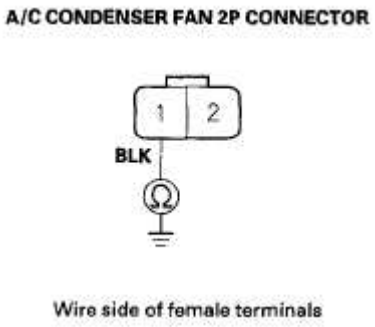


Fig. 52: Checking Continuity Between A/C Condenser Fan 2P Connector Terminal No. 1 And Body Ground

Is there continuity?

YES - Replace the A/C condenser fan motor, R18A1 engine (see **RADIATOR AND FAN REPLACEMENT**), K20Z3 engine (see **RADIATOR AND FAN REPLACEMENT**).

NO - Check for an open in the wire between the A/C condenser fan and body ground. If the wire is OK, check for poor ground at G301 (see **CONNECTOR TO HARNESS INDEX**).

38. Turn the ignition switch to LOCK (0).
39. Remove A/C diode A from the under-hood fuse/relay box.
40. Using the diode setting on a DVOM, check for current flow in both directions between the A/C diode A terminals No. 1 and No. 2.

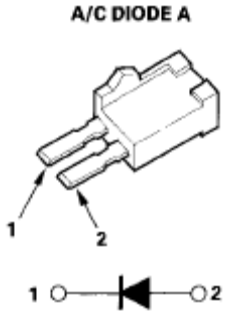


Fig. 53: Checking Current Flow In Both Directions Between A/C Diode A Terminals No. 1 And No. 2

Is there current flow in only one direction?

YES - Go to step 39.

NO - Replace A/C diode A.

41. Turn the ignition switch ON (II).
42. Measure the voltage between the A/C diode A 2P socket terminal No. 2 and body ground.

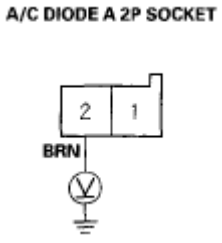


Fig. 54: Measuring Voltage Between A/C Diode A 2P Socket Terminal No. 2 And Body Ground

Is there battery voltage?

YES - Replace the under-hood fuse/relay box (see **REMOVAL AND INSTALLATION**).

NO - Repair open in the wire between the No. 36 (10 A) fuse in the under-dash fuse/relay box and A/C diode A.

A/C CONDENSER FAN HIGH SPEED CIRCUIT TROUBLESHOOTING

NOTE:

- **Do not use this troubleshooting procedure if the A/C compressor is inoperative. Refer to the SYMPTOM TROUBLESHOOTING INDEX.**
- **Before performing symptom troubleshooting, check for powertrain DTCs, R18A1 engine (see GENERAL TROUBLESHOOTING INFORMATION), K20Z3 engine (see GENERAL TROUBLESHOOTING INFORMATION).**

1. Check the No. 6 (20 A) and No. 15 (7.5 A) fuses in the under-hood fuse/relay box.

   Are the fuses OK?

   YES - Go to step 2.

   NO - Replace the fuses, and recheck. If the fuses blow again, check for a short in the No. 6 (20 A) and No. 15 (7.5 A) fuses circuit.

2. Remove the A/C condenser fan relay from the under-hood fuse/relay box, and test it (see **POWER RELAY TEST**).

   Is the relay OK?

   YES - Go to step 3.

   NO - Replace the A/C condenser fan relay.

3. Measure the voltage between the A/C condenser fan relay 4P socket terminal No. 1 and body ground.

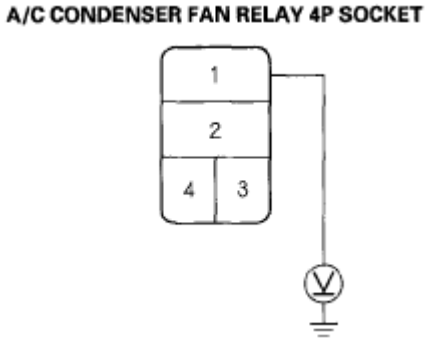


Fig. 55: Measuring Voltage Between A/C Condenser Fan Relay 4P Socket Terminal No. 1 And Body Ground

Is there battery voltage?

YES - Go to step 4.

NO - Replace the under-hood fuse/relay box (see **REMOVAL AND INSTALLATION**).

4. Connect the A/C condenser fan relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

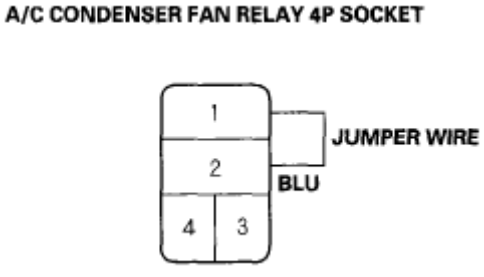


Fig. 56: Connecting A/C Condenser Fan Relay 4P Socket Terminals No. 1 And No. 2 With Jumper Wire

Does the A/C condenser fan run on high?

YES - Go to step 5.

NO - Replace the under-hood fuse/relay box (see **REMOVAL AND INSTALLATION**).

5. Disconnect the jumper wire.
6. Turn the ignition switch ON (II).
7. Measure the voltage between the A/C condenser fan relay 4P socket terminal No. 4 and body ground.

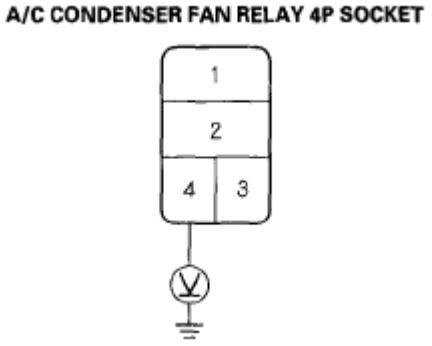


Fig. 57: Measuring Voltage Between A/C Condenser Fan Relay 4P Socket Terminal No. 4 And Body Ground

Is there battery voltage?

YES - Go to step 8.

NO - Go to step 16.

8. Turn the ignition switch to LOCK (0).
9. Check for continuity between the fan control relay 5P socket No. 2 terminal and body ground.

   Is there continuity?

   YES - Go to step 10.

   NO - Check for an open in the wire between the fan control relay and body ground. If the wire is OK, check for poor ground at G301.

10. Reinstall the A/C condenser fan relay.
11. Jump the SCS line with the HDS.

NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.

12. Disconnect ECM/PCM connector A (44P).
13. Connect the ECM/PCM connector A (44P) terminal No. 5 to body ground with a jumper wire.

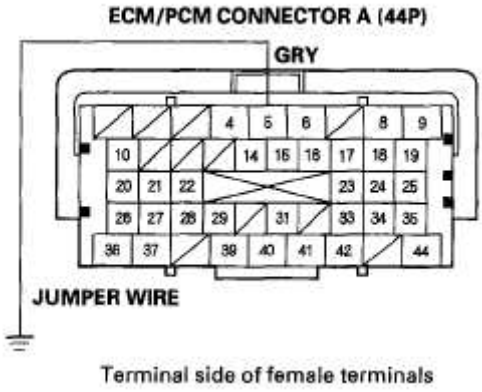


Fig. 58: Connecting ECM/PCM Connector A (44P) Terminal No. 5 To Body Ground With Jumper Wire

14. Turn the ignition switch ON (II).

    Does the A/C condenser fan run on high?

    YES - Check for loose wires or poor connections at ECM/PCM connector A (44P) terminal No. 5. If the connections are good, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM/PCM, R18A1 engine (see **ECM/PCM REPLACEMENT**), K20Z3 engine (see **ECM REPLACEMENT**).

    NO - Repair open in the wire between the A/C condenser fan relay and the ECM/PCM.

15. Turn the ignition switch to LOCK (0).
16. Remove A/C diode B from the under-hood fuse/relay box.
17. Turn the ignition switch ON (II).

18. Measure the voltage between the A/C diode B 2P socket terminal No. 2 and body ground.

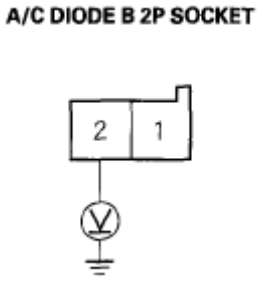


Fig. 59: Measuring Voltage Between A/C Diode B 2P Socket Terminal No. 2 And Body Ground

Is there battery voltage?

YES - Go to step 19.

NO - Replace the under-hood fuse/relay box (see **REMOVAL AND INSTALLATION**).

19. Using the diode setting on a DVOM, check for current flow in both directions between the A/C diode B terminals No. 1 and No. 2.

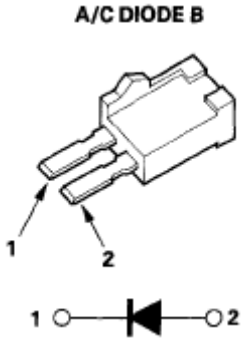


Fig. 60: Checking Current Flow In Both Directions Between A/C Diode B Terminals No. 1 And No. 2

Is there current flow in only one direction?

YES - Replace the under-hood fuse/relay box (see **REMOVAL AND**

INSTALLATION).

NO - Replace A/C diode B.

A/C COMPRESSOR CLUTCH CIRCUIT TROUBLESHOOTING

NOTE:

- **It is normal for the A/C compressor to turn off under certain conditions, such as low idle, high engine coolant temperature, or hard acceleration.**
- **Do not use this troubleshooting procedure if the fans are also inoperative with the A/C on. Refer to the SYMPTOM TROUBLESHOOTING INDEX.**
- **Before doing any symptom troubleshooting, check for powertrain DTCs, R18A1 engine (see GENERAL TROUBLESHOOTING INFORMATION), K20Z3 engine (see GENERAL TROUBLESHOOTING INFORMATION).**

1. Check the No. 20 (7.5 A) fuse in the under-hood fuse/relay box, and the No. 36 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES - Go to step 2.

   NO - Replace the fuses and recheck. If the fuses blow again, check for a short in the No. 20 (7.5 A) and No. 36 (10 A) fuses circuit.

2. Connect the HDS to the DLC.
3. Start the engine.
4. Turn on the A/C on the HVAC control unit.
5. Check the A/C CLUTCH in the PGM-FI Data List with the HDS at idle.

HDS A/C VALUES

ECT sensor 2	176-212 °F (80-100 °C)
TP sensor	About 0.5 V at idle

RPM	More than 670
A/C Switch	ON
A/C Clutch	ON

Are all the values within specifications?

YES - Go to step 6.

NO - Troubleshoot the value that is not within the specfications.

6. Turn the ignition switch to LOCK (0).
7. Remove the A/C compressor clutch relay from the under-hood fuse/relay box, and test it (see **POWER RELAY TEST**).

Is the relay OK?

YES - Go to step 8.

NO - Replace the A/C compressor clutch relay.

8. Measure the voltage between the A/C compressor clutch relay 4P socket terminal No. 1 and body ground.

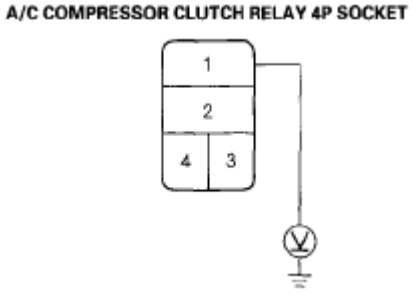


Fig. 61: Measuring Voltage Between A/C Compressor Clutch Relay 4P Socket Terminal No. 1 And Body Ground

Is there battery voltage?

YES - Go to step 9.

NO - Replace the under-hood fuse/relay box (see **REMOVAL AND INSTALLATION**).

9. Connect the A/C compressor clutch relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

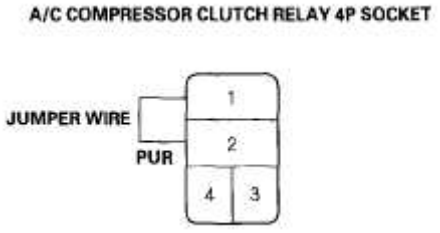


Fig. 62: Connecting A/C Compressor Clutch Relay 4P Socket Terminals No. 1 And No. 2 With Jumper Wire

Does the A/C compressor clutch click?

YES - Go to step 10.

NO - Go to step 19.

10. Disconnect the jumper wire.
11. Turn the ignition switch ON (II).
12. Measure the voltage between the A/C compressor clutch relay 4P socket terminal No. 3 and body ground.

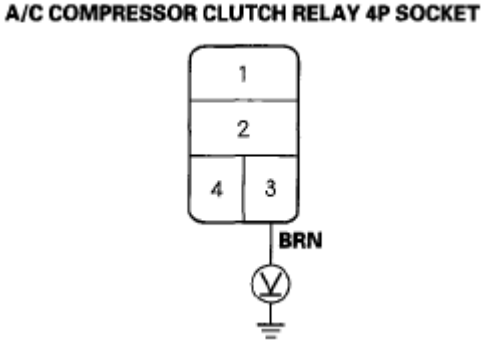


Fig. 63: Measuring Voltage Between A/C Compressor Clutch Relay 4P Socket Terminal No. 3 And Body Ground

Is there battery voltage?

YES - Go to step 13.

NO - Repair open in the wire between the No. 36 (10 A) fuse in the under-dash fuse/relay box and the A/C compressor clutch relay.

13. Turn the ignition switch to LOCK (0).
14. Reinstall the A/C compressor clutch relay.
15. Jump the SCS line with the HDS.

NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.

16. Disconnect ECM/PCM connector A (44P).
17. Connect the ECM/PCM connector A (44P) terminal No. 14 to body ground with a jumper wire.

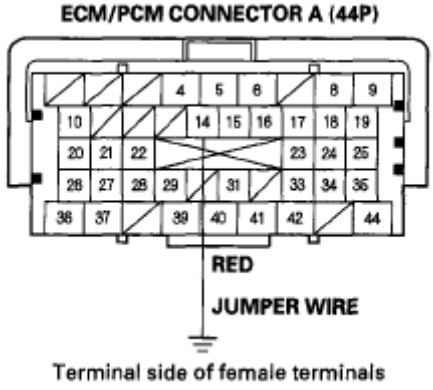


Fig. 64: Connecting ECM/PCM Connector A (44P) Terminal No. 14 To Body Ground With Jumper Wire

18. Turn the ignition switch ON (II).

Does the A/C compressor click?

YES - Check for loose wires or poor connections at ECM/PCM connector A (44P). If the connections are good, check the ECM/PCM grounds. If the

grounds are good, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM/PCM, R18A1 engine (see **ECM/PCM REPLACEMENT**), K20Z3 engine (see **ECM REPLACEMENT**).

NO - Repair open in the wire between the A/C compressor clutch relay and the ECM/PCM.

19. Disconnect the jumper wire.
20. Disconnect the A/C compressor clutch 3P connector.
21. Check for continuity between the A/C compressor clutch relay 4P socket terminal No. 2 and the A/C compressor clutch 3P connector terminal No. 2.

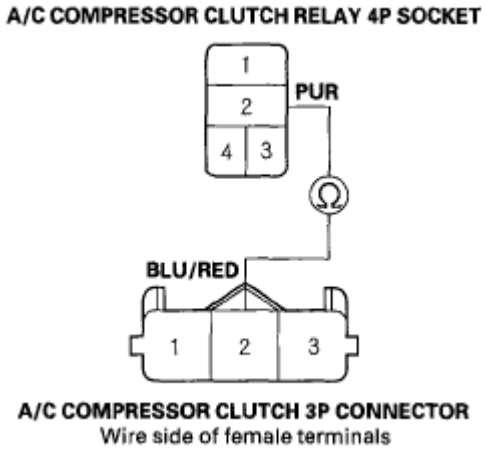


Fig. 65: Checking Continuity Between A/C Compressor Clutch Relay 4P Socket Terminal No. 2 And A/C Compressor Clutch 3P Terminal

Is there continuity?

YES - Check the A/C compressor clutch clearance, and the compressor clutch field coil (see **A/C COMPRESSOR CLUTCH CHECK**). Repair as needed.

NO - Repair open in the wire between the A/C compressor clutch relay and the A/C compressor clutch.

A/C SIGNAL CIRCUIT TROUBLESHOOTING

NOTE:

- **Do not use this troubleshooting procedure if any of the following items are operative; A/C condenser fan, radiator fan, A/C compressor. Refer to the SYMPTOM TROUBLESHOOTING INDEX.**
- **Before performing symptom troubleshooting, check for powertrain DTCs, R18A1 engine (see GENERAL TROUBLESHOOTING INFORMATION), K20Z3 engine (see GENERAL TROUBLESHOOTING INFORMATION).**

1. Turn the ignition switch to LOCK (0).
2. Disconnect the HVAC control unit 24P connector.
3. Turn the ignition switch ON (II).
4. Measure the voltage between the HVAC control unit 24P connector terminal No. 11 and body ground.

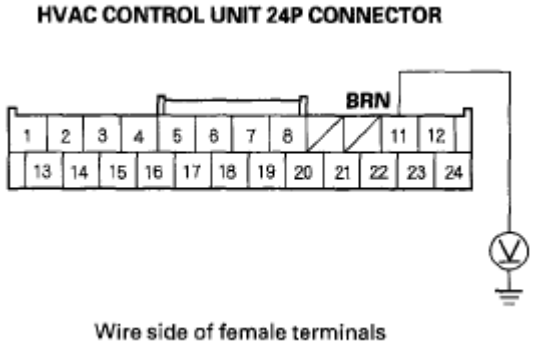


Fig. 66: Measuring Voltage Between HVAC Control Unit 24P Terminal No. 11 And Body Ground

Is there voltage?

YES - Go to step 11.

NO - Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the A/C compressor clutch 3P connector.
7. Turn the ignition switch ON (II).

8. R18A1 engine: Measure the voltage between the A/C compressor clutch 3P connector terminal No. 3 and body ground.

   K20Z3 engine: Measure the voltage between the A/C compressor clutch 3P connector terminal No. 1 and body ground.

   R18A1 engine

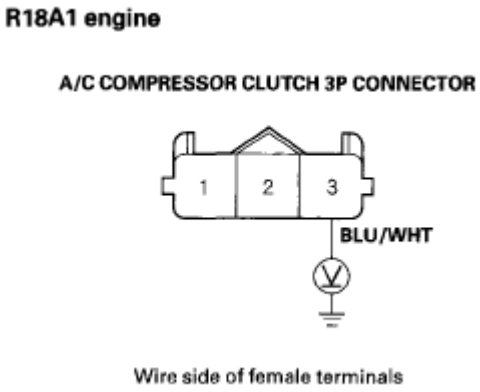


Fig. 67: Measuring Voltage Between A/C Compressor Clutch 3P Terminal No. 3 And Body Ground (R18A1 Engine)

   K20Z3 engine

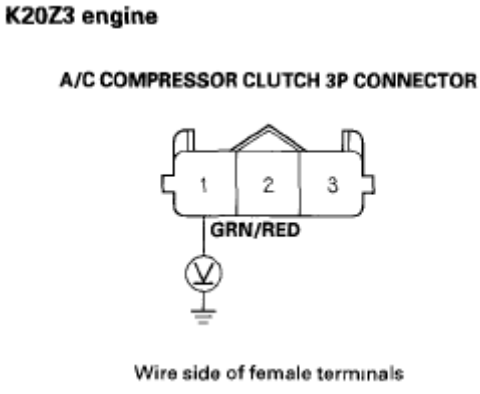


Fig. 68: Measuring Voltage Between A/C Compressor Clutch 3P Terminal No. 1 And Body Ground (K20Z3 Engine)

   Is there battery voltage?

   YES - Go to step 9.

NO - Repair open in the wire between the A/C compressor and the MICU. If the wire is OK, substitute a known-good MICU and recheck. If the symptom goes away, replace the original MICU.

9. Test the A/C compressor thermal protector (see **A/C COMPRESSOR CLUTCH CHECK**).

   Is the A/C compressor thermal protector OK?

   YES - Go to step 10.

   NO - Replace the A/C compressor thermal protector (see **A/C COMPRESSOR THERMAL PROTECTOR REPLACEMENT**).

10. R18A1 engine: Check for continuity between the HVAC control unit 24P connector terminal No. 11 and the A/C compressor clutch 3P connector terminal No. 1.

    K20Z3 engine: Check for continuity between the HVAC control unit 24P connector terminal No. 11 and the A/C compressor clutch 3P connector terminal No. 3.

    R18A1 engine

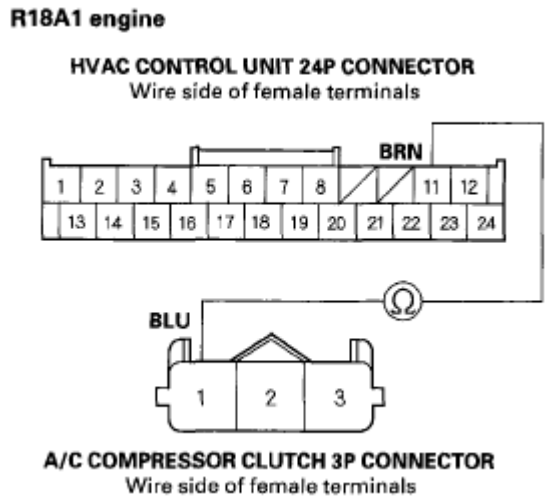

R18A1 engine
HVAC CONTROL UNIT 24P CONNECTOR
Wire side of female terminals
BRN
1 2 3 4 5 6 7 8 11 12
13 14 15 16 17 18 19 20 21 22 23 24
Ω
BLU
1 2 3
A/C COMPRESSOR CLUTCH 3P CONNECTOR
Wire side of female terminals

Fig. 69: Checking Continuity Between HVAC Control Unit 24P Terminal No. 11 And A/C Compressor Clutch 3P Terminal No. 1 (R18A1 Engine)

K20Z3 engine

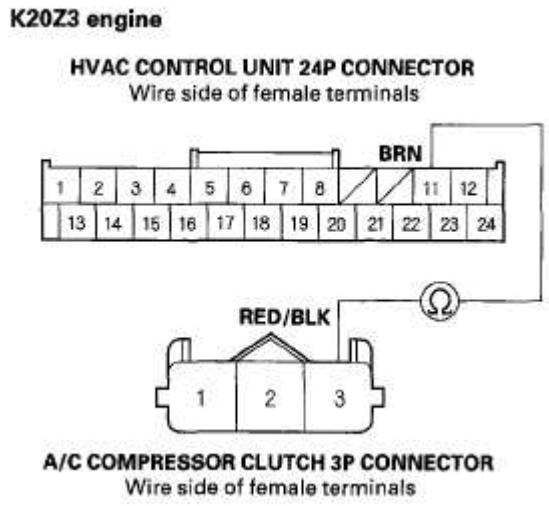

K20Z3 engine
HVAC CONTROL UNIT 24P CONNECTOR
Wire side of female terminals
BRN
1 2 3 4 5 6 7 8 11 12
13 14 15 16 17 18 19 20 21 22 23 24
RED/BLK
1 2 3
A/C COMPRESSOR CLUTCH 3P CONNECTOR
Wire side of female terminals

Fig. 70: Checking Continuity Between HVAC Control Unit 24P Terminal No. 11 And A/C Compressor Clutch 3P Terminal No. 3 (K20Z3 Engine)

Is there continuity?

YES - Check for loose wires or poor connections at the HVAC control unit 24P connector and at the A/C compressor clutch 3P connector.

NO - Repair open in the wire between the HVAC control unit and A/C compressor.

11. Turn the ignition switch to LOCK (0).
12. Measure the evaporator temperature sensor resistance between the HVAC control unit 24P connector terminals No. 2 and No. 13.

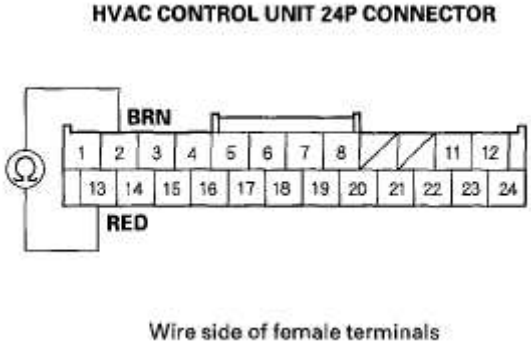


Fig. 71: Measuring Evaporator Temperature Sensor Resistance Between HVAC Control Unit 24P Connector Terminals No. 2 And No. 13

Is resistance less than 24 kohms ?

YES - Go to step 13.

NO - Test the evaporator temperature sensor (see **EVAPORATOR TEMPERATURE SENSOR TEST**).

13. Reconnect the HVAC control unit 24P connector.
14. Turn the ignition switch ON (II).
15. Check if the blower motor operates at all speeds.

Does the blower motor operates at all speeds?

YES - Check for loose wires or poor connections at the HVAC control unit 24P connector. If the connections are good, substitute a known-good HVAC control unit and recheck. If the symptom goes away, replace the original HVAC control unit.

NO - Repair the problem in the blower motor circuit.

EVAPORATOR TEMPERATURE SENSOR TEST

1. Remove the evaporator core and the evaporator temperature sensor (see **EVAPORATOR CORE REPLACEMENT**).
2. Dip the sensor in ice water, and measure the resistance between its terminals.

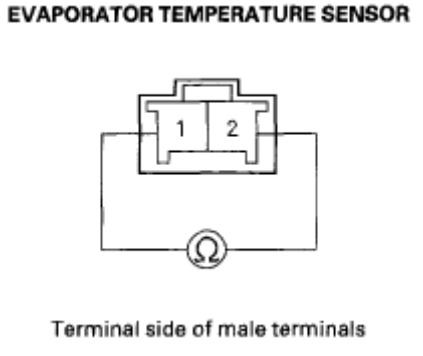


Fig. 72: Measuring Resistance Between Evaporator Temperature Sensor Terminals

3. Then pour warm water on the sensor, and check for a change in resistance.
4. Compare the resistance readings with the specifications shown in **Fig. 73** ; the resistance should be within the specifications.

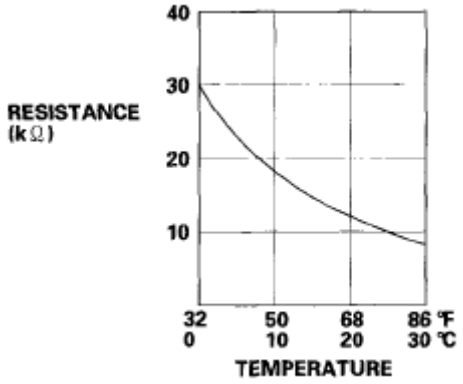


Fig. 73: Resistance To Temperature Graph

5. If the resistance is not as specified, replace the evaporator temperature sensor (see **EVAPORATOR CORE REPLACEMENT**).

HVAC CONTROL UNIT REMOVAL AND INSTALLATION

1. Remove the center panel (see **AUDIO UNIT REMOVAL/INSTALLATION**).
2. Remove the dials (A), the self-tapping screws, and the HVAC control unit (B).

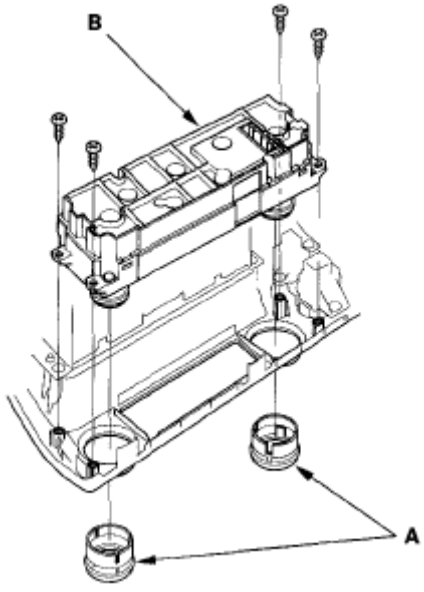


Fig. 74: Removing Dials, Self-Tapping Screws And HVAC Control Unit

3. Install the control unit in the reverse order of removal. After installation, operate the various functions to make sure they work properly.
4. Run the self-diagnostic function to confirm that there are no problems in the system (see **GENERAL TROUBLESHOOTING INFORMATION**).

EVAPORATOR CORE REPLACEMENT

1. Recover the refrigerant with a recovery/recycling/charging station (see **REFRIGERANT RECOVERY**).
2. Remove the bolt.

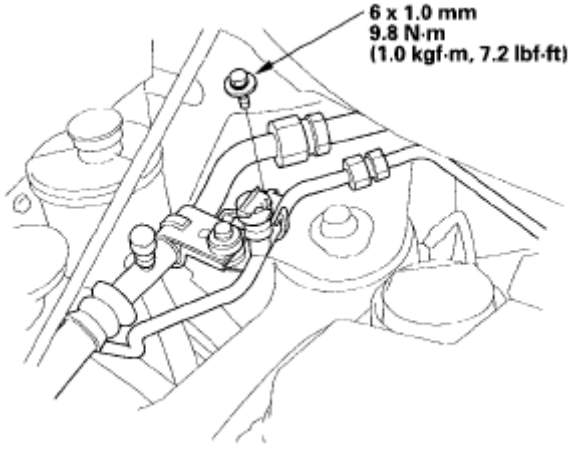


Fig. 75: Removing Evaporator Core Bolt (With Specifications)

3. Remove the nut, then disconnect the A/C lines (A) from the evaporator core.

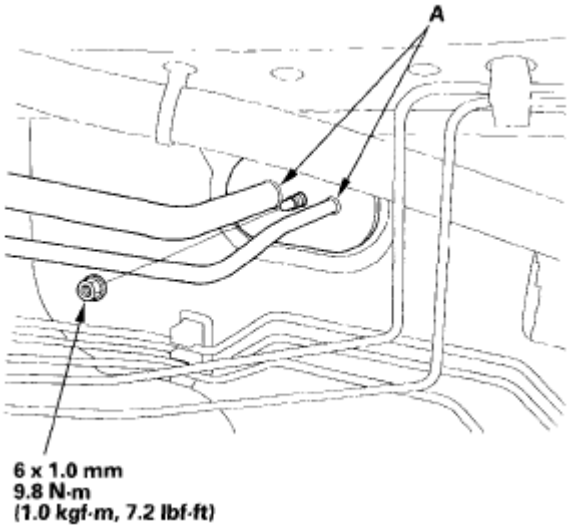


Fig. 76: Disconnecting A/C Lines From Evaporator Core (With Specifications)

4. Remove the stud bolt.

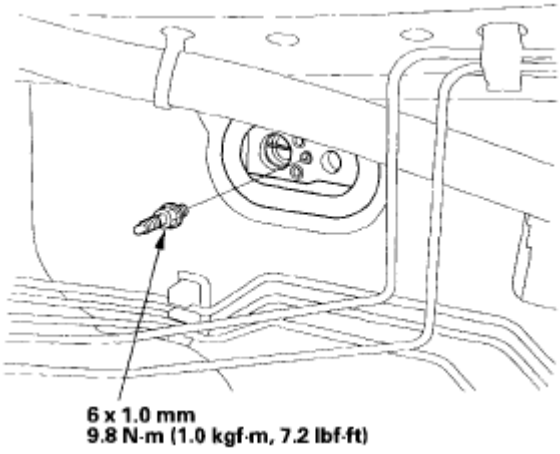


Fig. 77: Removing Stud Bolt (With Specifications)

5. Remove the blower unit (see **BLOWER UNIT REMOVAL AND INSTALLATION**).
6. Disconnect the connectors (A) from the evaporator temperature sensor and the

power transistor, then remove the connector clip (B). Remove the self-tapping screws, the expansion valve cover (C), and the seal (D).

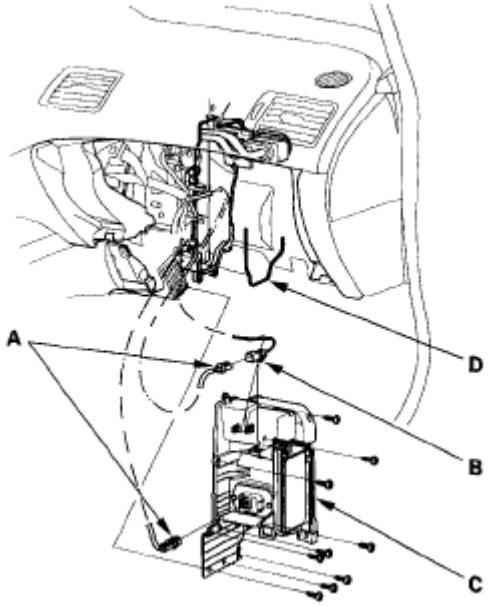


Fig. 78: Disconnecting Connectors From Evaporator Temperature Sensor And Power Transistor

7. Carefully pull out the evaporator core (A) without bending the lines, then remove the plate (B).

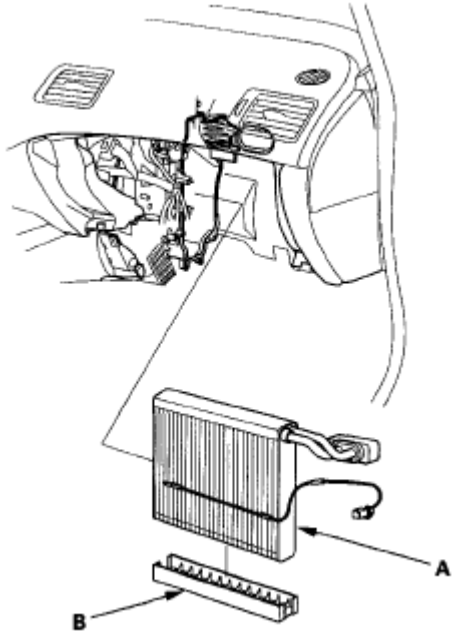


Fig. 79: Removing Evaporator Core Without Bending Lines

8. Remove the clips (A) and the evaporator temperature sensor (B).

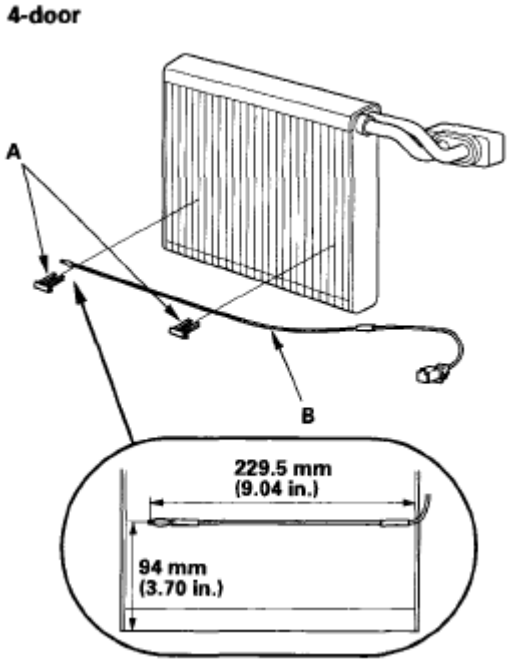


Fig. 80: Removing Clips And Evaporator Temperature Sensor (4-Door)

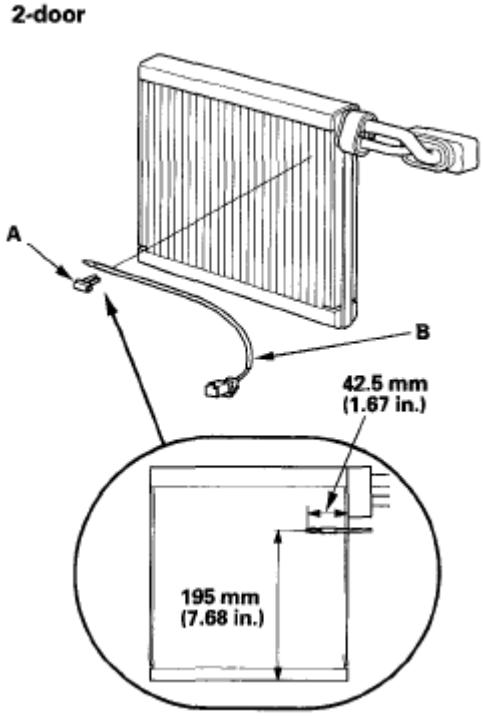


Fig. 81: Removing Clips And Evaporator Temperature Sensor (2-Door)

9. Install the core in the reverse order of removal and note these items:
   - If you're installing a new evaporator core, add refrigerant oil (SP-10) (see **A/C REFRIGERANT OIL REPLACEMENT**).
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Make sure that there is no air leakage.
   - Charge the system (see **SYSTEM CHARGING**).

HEATER UNIT/CORE REPLACEMENT

SRS components are located in this area. Review the SRS component locations (see **COMPONENT LOCATION INDEX**) and the precautions and procedures (see **PRECAUTIONS AND PROCEDURES**) in the SRS before doing repairs or service.

1. Make sure you have the anti-theft code for the audio or the navigation system, then write down the audio presets.
2. Make sure the ignition is OFF, then disconnect the negative cable from the battery.
3. Disconnect the A/C line from the evaporator core (see **EVAPORATOR CORE REPLACEMENT**).
4. Remove the air cleaner housing assembly, R18A1 engine (see **THROTTLE BODY CLEANING**), K20Z3 engine (see **AIR CLEANER REMOVAL/INSTALLATION**).
5. When the engine is cool, drain the engine coolant from the radiator, R18A1 engine (see **COOLANT REPLACEMENT**), K20Z3 engine (see **COOLANT CHECK**).

6. From under the hood, slide the hose clamps (A) back. Disconnect the inlet heater hose (B) and the outlet heater hose (C) from the heater unit. Note the orientation of the hose.

   Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.

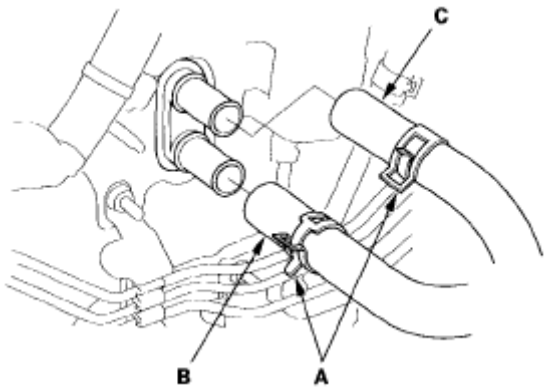


Fig. 82: Disconnecting Inlet And Outlet Heater Hose

7. Remove the mounting nut from the heater unit. Take care not to damage or bend the fuel lines or brake lines, etc.

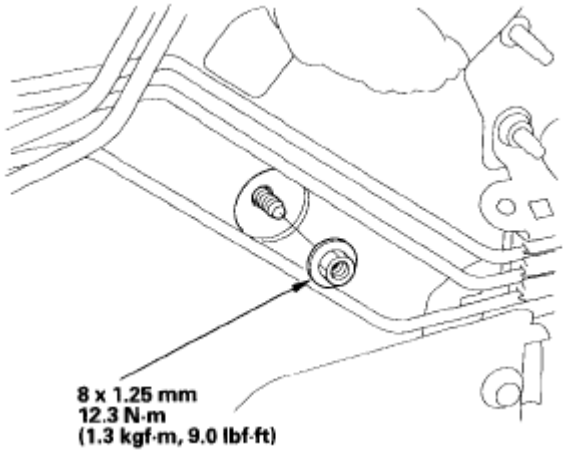


Fig. 83: Removing Heater Unit Nut (With Specifications)

8. Remove the dashboard (see **DASHBOARD/STEERING HANGER BEAM REMOVAL/INSTALLATION**).

9. Disconnect the connector (A) from the blower motor. Remove the wire harness clip (B).

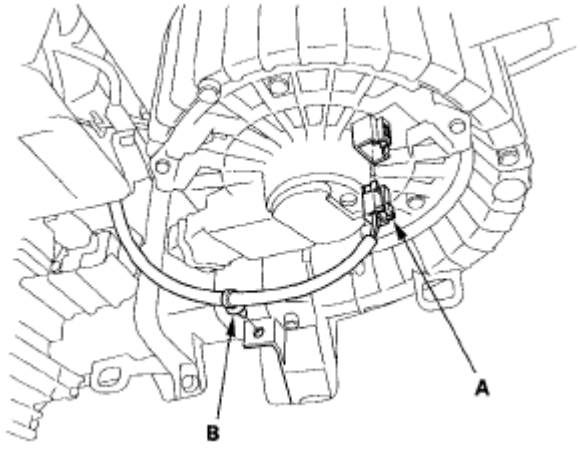


Fig. 84: Disconnecting Connector From Blower Motor

10. Disconnect the connector (A) from the recirculation control motor.

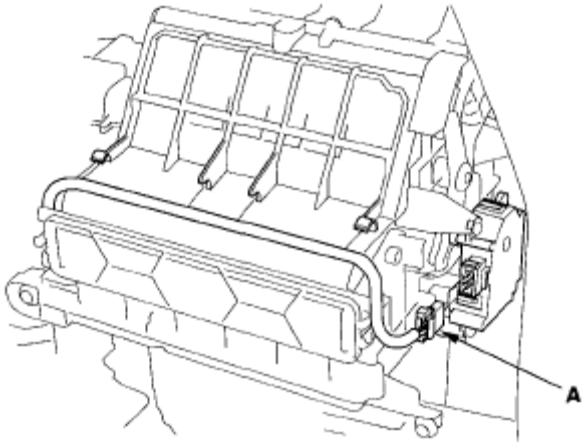


Fig. 85: Disconnecting Connector From Recirculation Control Motor

11. Disconnect the connectors (A) from the mode control motor, the evaporator temperature sensor, and the power transistor. Remove the wire harness clips (B).

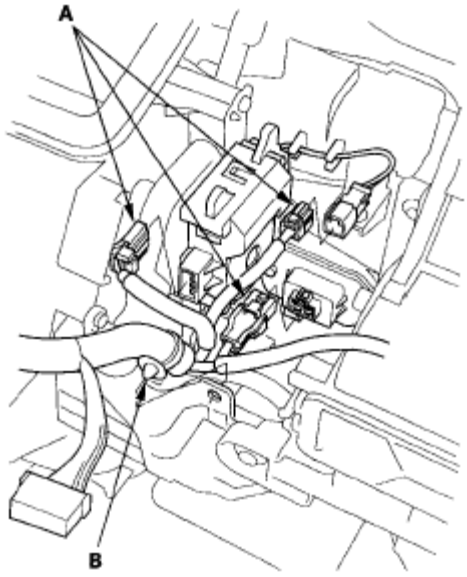


Fig. 86: Disconnecting Connector From Mode Control Motor

12. Disconnect the connectors (A) from the air mix control motor and A/C wire harness. Remove the connector clip (B), the wire harness clips (C), and the wire harness (D).

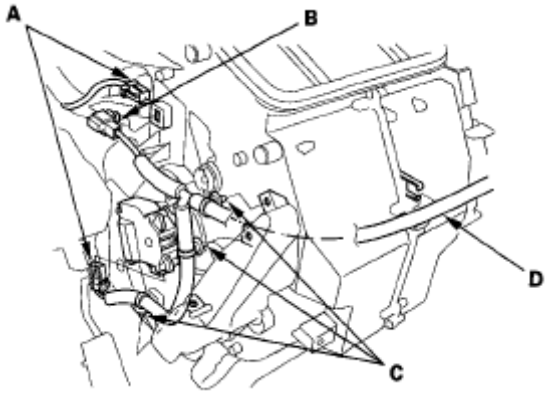


Fig. 87: Disconnecting Connectors From Air Mix Control Motor And A/C Wire Harness

13. Remove the mounting bolt, mounting nuts, and blower-heater unit (A).

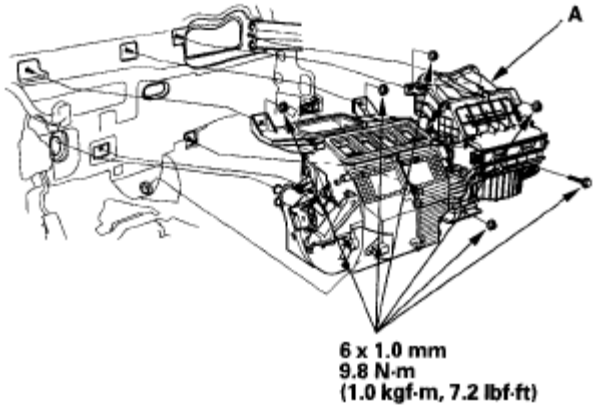


Fig. 88: Removing Blower-Heater Unit (With Specifications)

14. Remove the self-tapping screws, the heater core cover (A), the grommet (B), and carefully pull out the heater core (C).

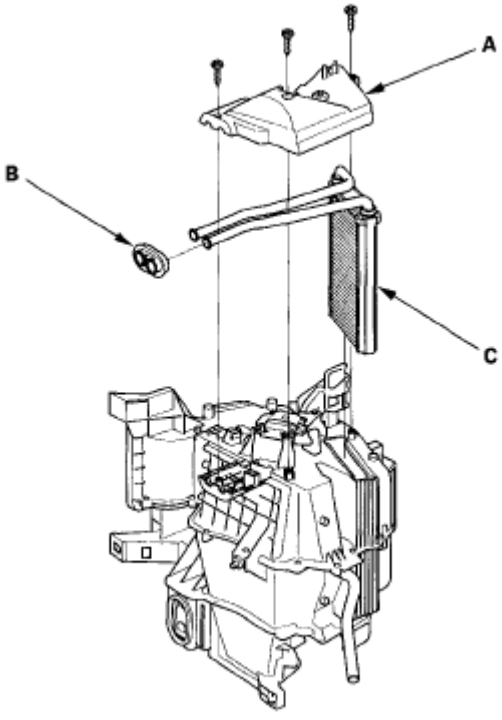


Fig. 89: Removing Heater Core Cover

15. Install the heater core and the evaporator core in the reverse order of removal.
16. Install the heater unit in the reverse order of removal, and note these items:
    - Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.

- Refill the cooling system with engine coolant, R18A1 engine (see **COOLANT REPLACEMENT**), K20Z3 engine (see **COOLANT REPLACEMENT**).
- Make sure that there is no coolant leakage.
- Make sure that there is no air leakage.
- Refer to **EVAPORATOR CORE REPLACEMENT** .
- Enter the anti-theft code for the audio or navigation system, then enter the audio presets.
- Set the clock.

A/C COMPRESSOR REPLACEMENT

R18A1 ENGINE

NOTE: Do not install an A/C compressor into a system unless you are completely sure that the system is free of contamination. Installing the A/C compressor into a contaminated system can result in premature A/C compressor failure.

1. If the A/C compressor is marginally operable, run the engine at idle speed, and let the air conditioning work for a few minutes, then shut the engine off.
2. Recover the refrigerant with a recovery/recycling/charging station (see **REFRIGERANT RECOVERY**).
3. Make sure you have the anti-theft code for the audio or navigation system, then write down the audio presets.
4. Remove the front grille cover (see **FRONT GRILLE COVER REPLACEMENT**) and the alternator (see **ALTERNATOR REMOVAL AND INSTALLATION**).
5. Disconnect the connector (A) from the A/C condenser fan motor. Remove the wire harness clip (B) and the connector clip (C). Remove the upper mounting bolts, and the A/C condenser fan shroud (D). Be careful not to damage the radiator fins when removing the A/C condenser fan shroud.

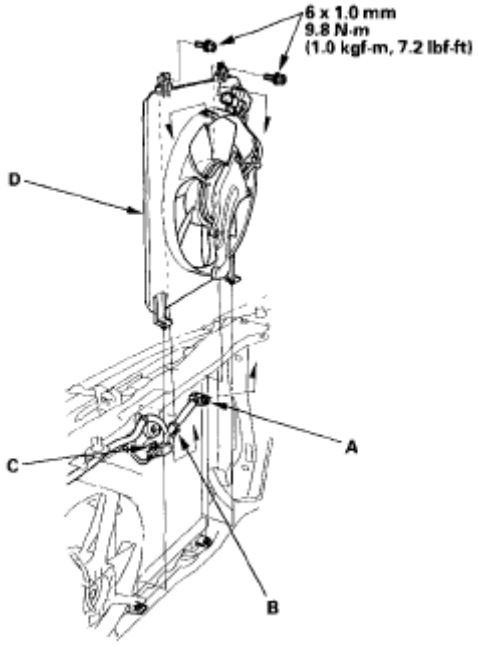


Fig. 90: Removing A/C Condenser Fan Shroud (With Specifications)

6. Remove the bolt and the nut, then disconnect the suction hose (A) and discharge hose (B) from the A/C compressor. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.

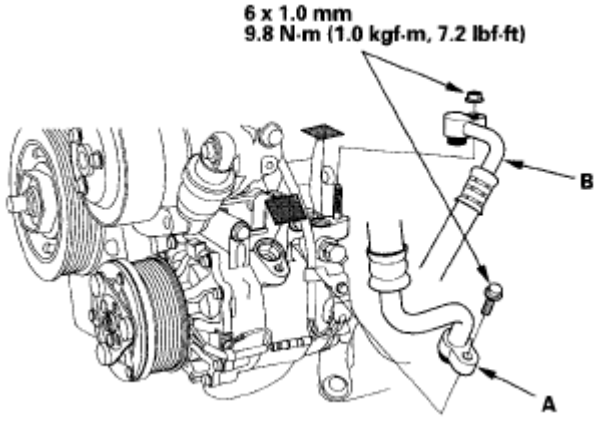


Fig. 91: Disconnecting Suction Hose And Discharge Hose (With Specifications)

7. Remove the mounting bolts and the A/C compressor (A). Be careful not to damage the radiator fins when removing the A/C compressor.

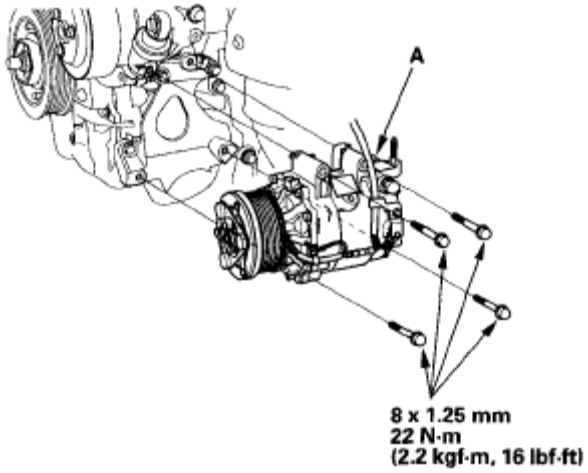


Fig. 92: Removing A/C Compressor (With Specifications)

8. Install the compressor in the reverse order of removal, and note these items:
   - Inspect the A/C lines for any signs of contamination.
   - If you're installing a new A/C compressor, you must calculate the amount of refrigerant oil to be removed from it (see **A/C REFRIGERANT OIL REPLACEMENT**). A new A/C compressor comes with a full charge of oil.
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Use refrigerant oil (SP-10) for HFC-134a spiral type A/C compressor only.
   - To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Charge the system (see **SYSTEM CHARGING**).
   - Enter the anti-theft code for the audio or navigation system, then enter the audio presets.
   - Set the clock.

K20Z3 ENGINE

NOTE: Do not install an A/C compressor into a system unless you are completely sure that the system is free of contamination. Installing the A/C compressor into a contaminated system can result in premature A/C compressor failure.

1. If the A/C compressor is marginally operable, run the engine at idle speed, and let the air conditioning work for a few minutes, then shut the engine off.
2. Recover the refrigerant with a recovery/recycling/charging station (see **REFRIGERANT RECOVERY**).
3. Remove the front grille cover (see **FRONT GRILLE COVER REPLACEMENT**) and the drive belt (see **DRIVE BELT INSPECTION**).
4. Remove the clips (A) and the bolts.

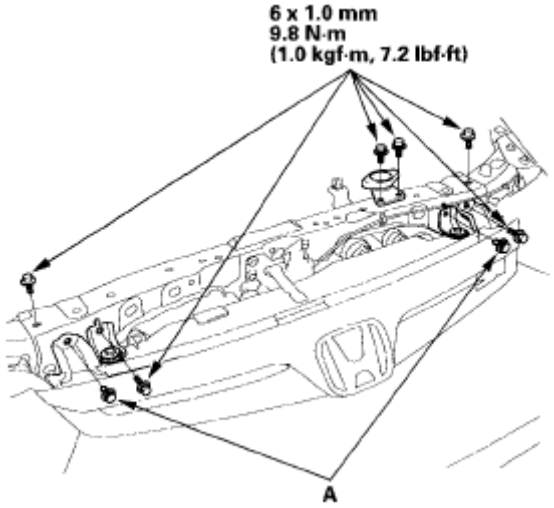


Fig. 93: Removing Clips And Bolts (With Specifications)

5. Remove the bolts, the connector (A), wire harness clips (B), and the bulkhead (C).

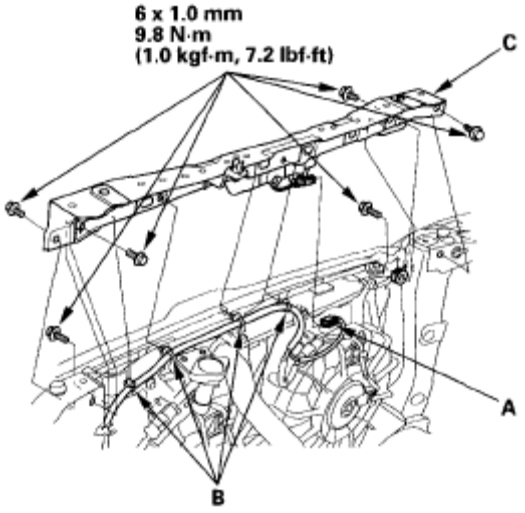


Fig. 94: Removing Bulkhead (With Specifications)

6. Disconnect the connector (A) from the A/C condenser fan motor. Remove the wire harness clip (B), the upper mounting bolts, and the A/C condenser fan shroud (C). Be careful not to damage the radiator fins when removing the A/C condenser fan shroud.

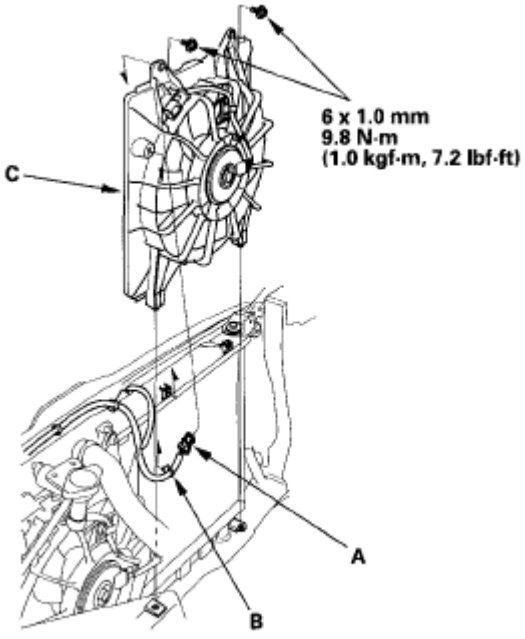


Fig. 95: Removing A/C Condenser Fan Shroud (With Specifications)

7. Remove the bolt.

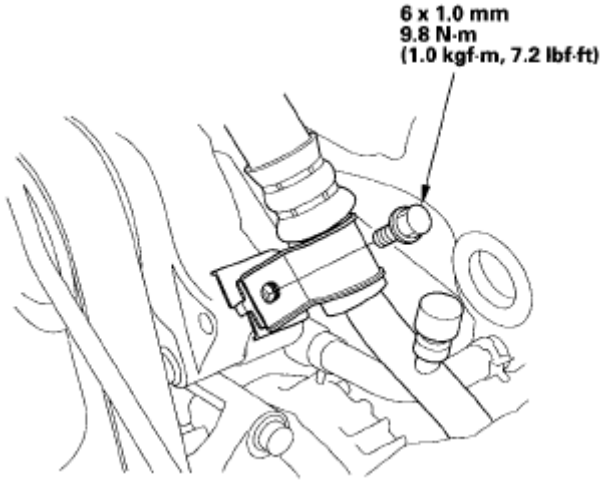


Fig. 96: Removing Bolt (With Specifications)

8. Remove the splash shield (see **FRONT SPLASH SHIELD REPLACEMENT**).
9. Disconnect the connector (A). Remove the bolt and the nut, then disconnect the suction hose (B) and discharge hose (C) from the A/C compressor. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.

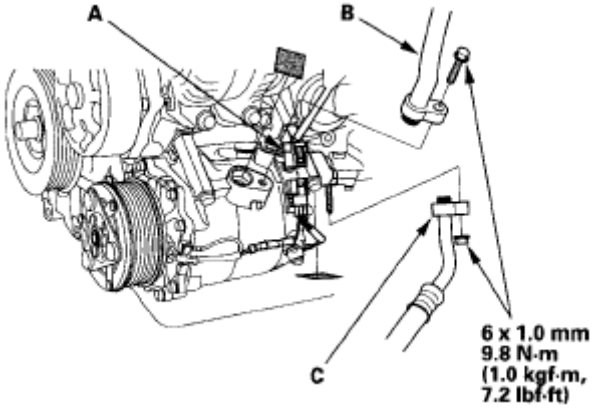


Fig. 97: Disconnecting Suction Hose And Discharge Hose From A/C Compressor (With Specifications)

10. Remove the mounting bolts and the A/C compressor (A). Be careful not to damage the radiator fins when removing the A/C compressor.

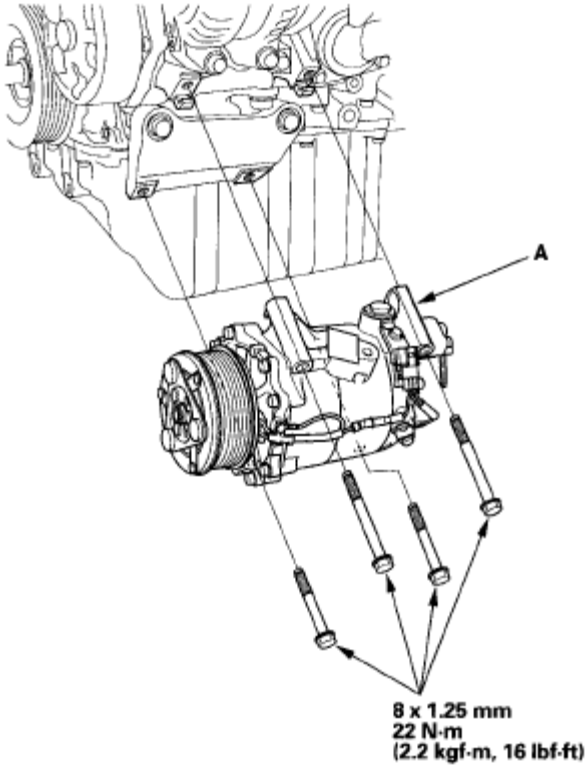


Fig. 98: Removing A/C Compressor (With Specifications)

11. Install the compressor in the reverse order of removal, and note these items:
    - Inspect the A/C lines for any signs of contamination.
    - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
    - Use refrigerant oil (SP-10) for HFC-134a SANDEN spiral type A/C compressor only.
    - To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
    - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
    - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
    - Charge the system (see **SYSTEM CHARGING**).

A/C COMPRESSOR CLUTCH CHECK

1. Check the armature plate for discoloration, peeling, or other damage. If there is damage, replace the clutch set (see **A/C COMPRESSOR CLUTCH OVERHAUL**).
2. Check the rotor pulley bearing play and drag by rotating the rotor pulley by hand. Replace the clutch set with a new one if it is noisy or has excessive play/drag (see **A/C COMPRESSOR CLUTCH OVERHAUL**).

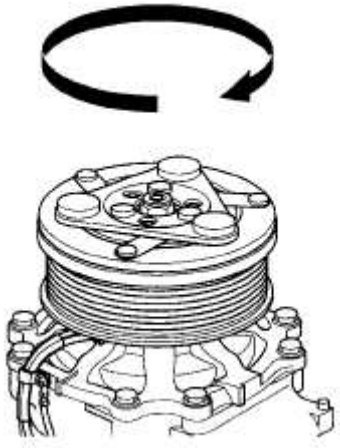


Fig. 99: Checking Rotor Pulley Bearing Play And Drag Rotating Rotor Pulley

3. Measure the clearance between the rotor pulley (A) and the armature plate (B) all the way around. If the clearance is not within specified limits, remove the armature plate (see **A/C COMPRESSOR CLUTCH OVERHAUL**) and add or remove shims as needed to increase or decrease clearance.

   Clearance: 0.35-0.65 mm (0.014-0.026 in.)

   NOTE: The shims are available in four thicknesses: 0.1 mm, 0.2 mm, 0.4 mm, and 0.5 mm.

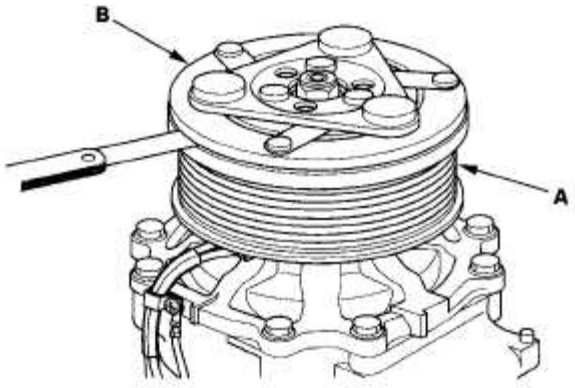


Fig. 100: Measuring Clearance Between Rotor Pulley And Armature Plate

4. Check for continuity between the A/C compressor clutch connector No. 1 and No. 3. If there is no continuity, replace the thermal protector (see **A/C COMPRESSOR THERMAL PROTECTOR REPLACEMENT**).

NOTE: The thermal protector will have no continuity above about 252 to 262°F (122 to 128°C). When the temperature drops below about 241 to 219°F (116 to 104°C), the thermal protector will have continuity.

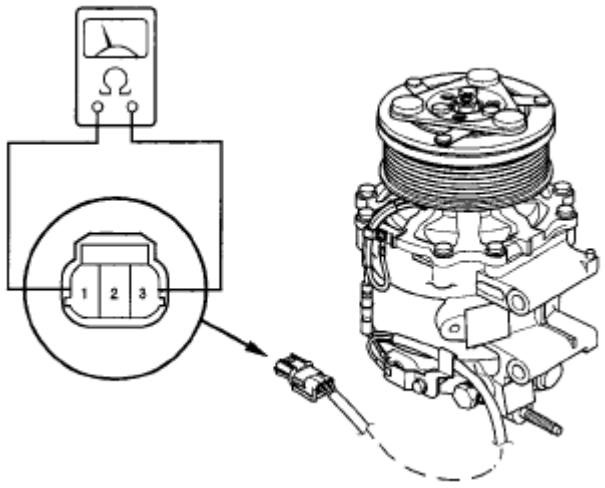


Fig. 101: Checking Continuity Between A/C Compressor Clutch Connector No. 1 And No. 3

5. Disconnect the field coil connector (A). Check resistance of the field coil. If resistance is not within specifications, replace the field coil (see **A/C**

COMPRESSOR CLUTCH OVERHAUL).

Field Coil Resistance: 3.15-3.45 ohms 68°F (20°C)

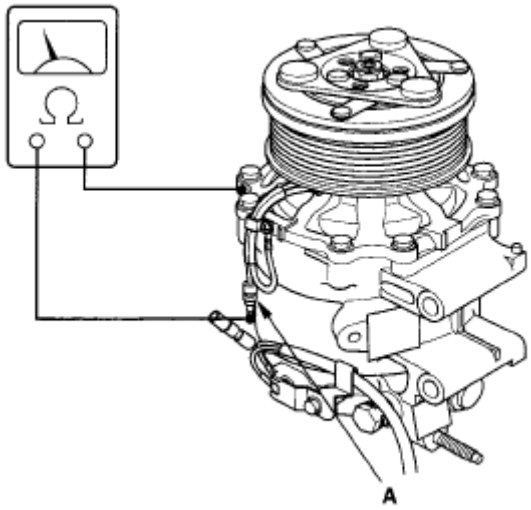


Fig. 102: Checking Resistance Of Field Coil

A/C COMPRESSOR CLUTCH OVERHAUL

Special Tools Required

A/C clutch holder, Robinair 10204 or Kent-Moore J37872, or Honda Tool and Equipment KMT-J33939, commercially available

1. Remove the center nut while holding the armature plate (A) with a commercially available A/C clutch holder (B).

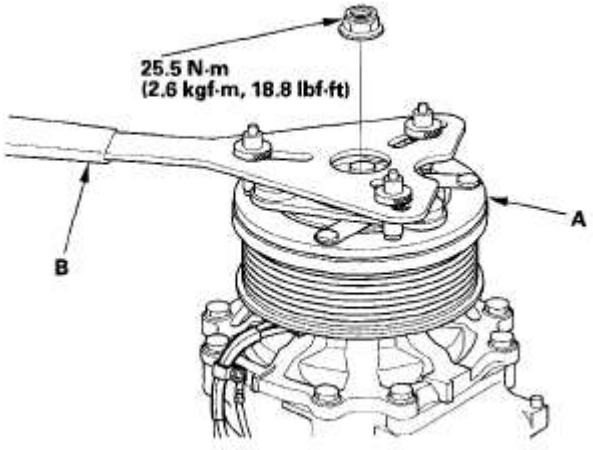


Fig. 103: Removing Center Nut Holding Armature Plate (With Specifications)

2. Remove the armature plate (A) and shim(s) (B), taking care not to lose the shim(s). If the clutch needs adjustment, increase or decrease the number and thickness of shims as necessary, then reinstall the armature plate, and recheck its clearance (see **A/C COMPRESSOR CLUTCH OVERHAUL**).

NOTE: The shims are available in four thicknesses: 0.1 mm, 0.2 mm, 0.4 mm, and 0.5 mm.

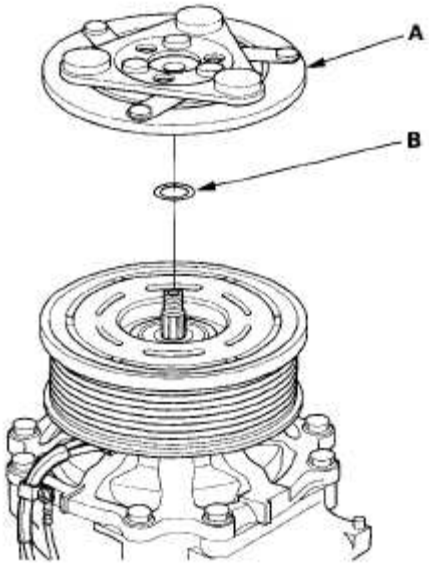


Fig. 104: Removing Armature Plate and Shim(s)

3. If you are replacing the field coil, remove the snap ring (A) with snap ring pliers, then remove the rotor pulley (B). Be careful not to damage the rotor pulley and A/C compressor.

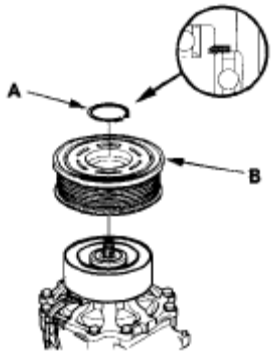


Fig. 105: Removing Snap Ring And Rotor Pulley

4. Remove the bolt and holder (A), then disconnect the field coil connector (B). Remove the snap ring (C) with snap ring pliers, then remove the field coil (D). Be careful not to damage the field coil and A/C compressor.

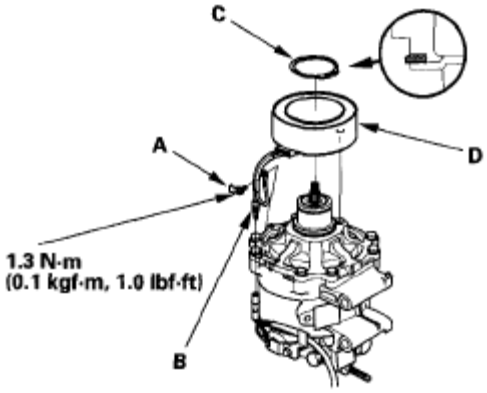


Fig. 106: Removing Field Coil (With Specifications)

5. Reassemble the clutch in the reverse order of disassembly, and note these items:
   - Install the field coil with the wire side facing down, and align the boss on the field coil with the hole in the A/C compressor.
   - Clean the rotor pulley and A/C compressor sliding surfaces with contact cleaner or other non-petroleum solvent.
   - Install new snap rings, note the installation direction, and make sure they are fully seated in the groove.
   - Make sure that the rotor pulley turns smoothly after it's reassembled.
   - Route and clamp the wires properly or they can be damaged by the rotor

pulley.

A/C COMPRESSOR THERMAL PROTECTOR REPLACEMENT

1. Remove the bolt and the holder (A). Disconnect the field coil connector (B), then remove the thermal protector (C).

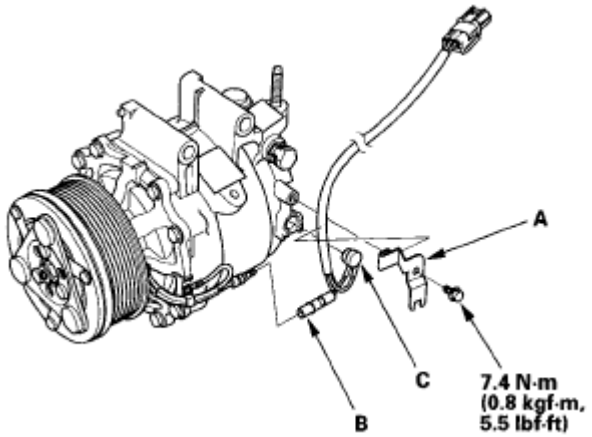


Fig. 107: Removing Thermal Protector (With Specifications)

2. Replace the thermal protector (A) with a new one, and apply silicone sealant (B) to the bottom of the thermal protector.

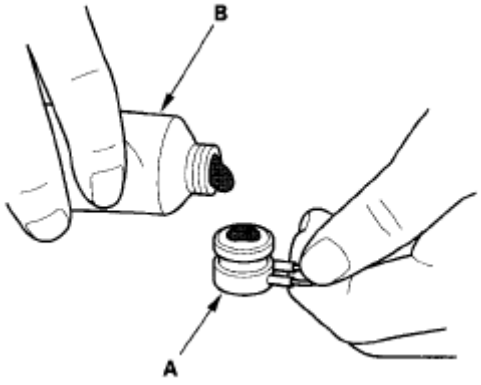


Fig. 108: Applying Silicone Sealant To Bottom Of Thermal Protector

3. Install the thermal protector in the reverse order of removal.

A/C COMPRESSOR RELIEF VALVE REPLACEMENT

1. Recover the refrigerant with a recovery/recycling/charging station (see

REFRIGERANT RECOVERY).

2. Remove the relief valve cover (A), the relief valve (B), and the O-ring (C). Plug the opening to keep foreign matter from entering the system and the A/C compressor oil from running out.

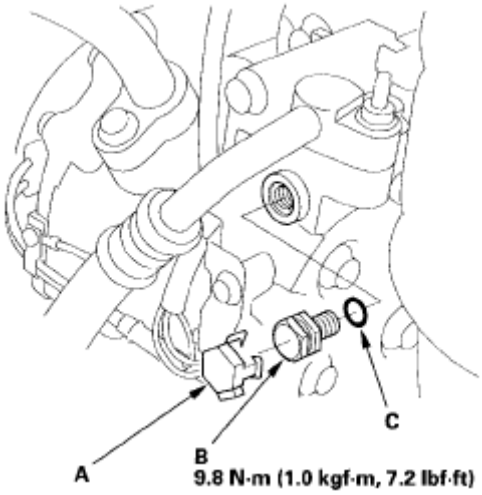


Fig. 109: Removing Relief Valve Cover, Relief Valve And O-Ring (With Specifications)

3. Clean the mating surfaces.
4. Replace the O-ring with a new one at the relief valve, and apply a thin coat of refrigerant oil before installing it.
5. Remove the plug, and install and tighten the relief valve.
6. Charge the system (see **SYSTEM CHARGING**).

A/C CONDENSER REPLACEMENT

1. Recover the refrigerant with a recovery/recycling/charging station (see **REFRIGERANT RECOVERY**).
2. Remove the front bumper (see **FRONT BUMPER REMOVAL/INSTALLATION**).
3. Remove the bolts, then disconnect the discharge hose (A) from the A/C condenser.

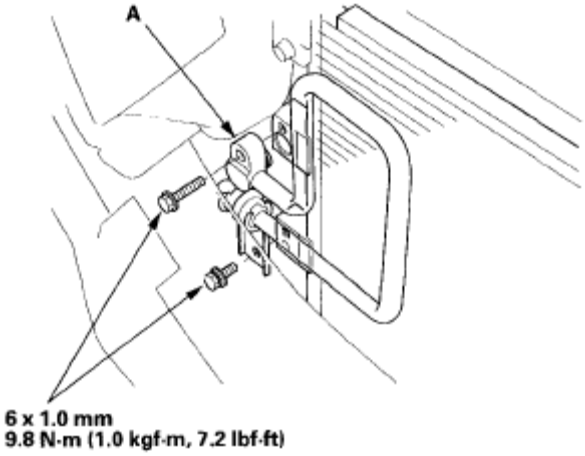


Fig. 110: Disconnecting Discharge Hose (With Specifications)

4. Remove the bolt, then disconnect the receiver line (A) from the A/C condenser.

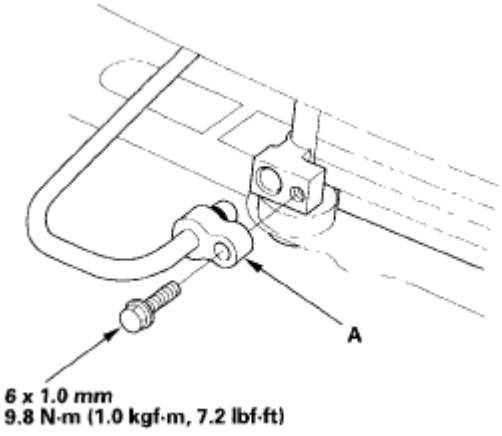


Fig. 111: Disconnecting Receiver Line (With Specifications)

5. Remove the bolts and the A/C condenser upper mount brackets (A).

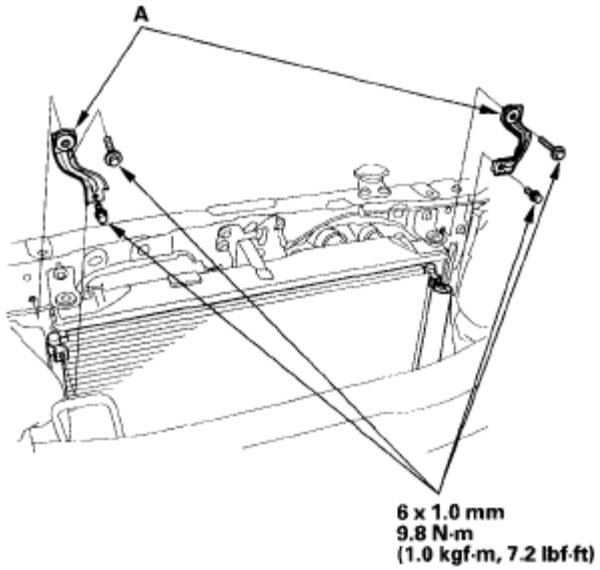


Fig. 112: Removing A/C Condenser Upper Mount Brackets (With Specifications)

6. Lift the tab (A) to release the lock, then remove the outside air temperature sensor (B) from the receiver/dryer desiccant bracket. Disconnect the 2P connector (C) then remove the clip (D).

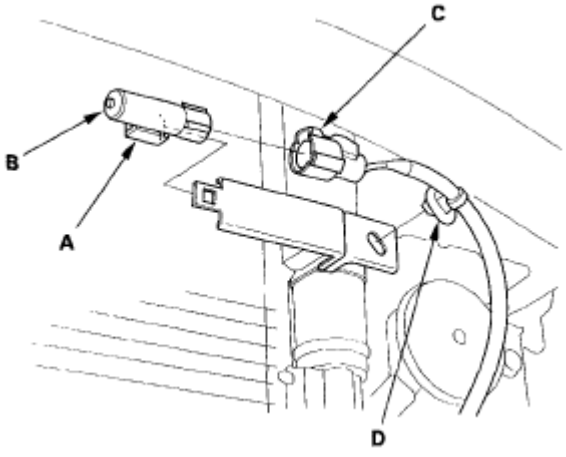


Fig. 113: Disconnecting 2P Connector And Removing Clip

7. Remove the A/C condenser (A). Be careful not to damage the radiator and A/C condenser fins when removing the A/C condenser.

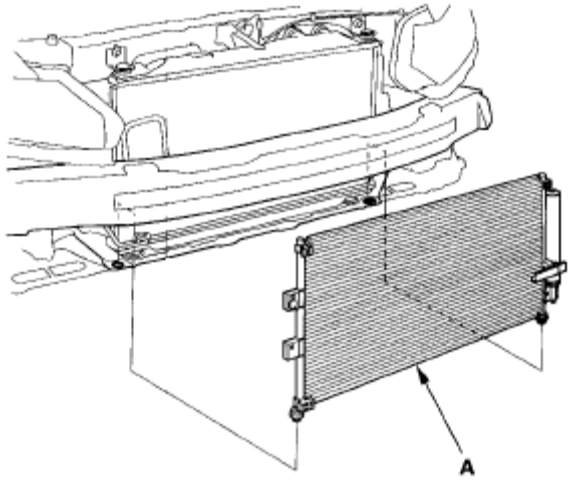


Fig. 114: Removing A/C Condenser

8. Install the A/C condenser in the reverse order of removal, and note these items:
   - If you're installing a new A/C condenser, add refrigerant oil (SP-10) (see **A/C REFRIGERANT OIL REPLACEMENT**).
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Charge the system (see **SYSTEM CHARGING**).

RECEIVER/DRYER DESICCANT REPLACEMENT

4-DOOR

NOTE: Install the receiver/dryer as quickly as possible to prevent the system from absorbing moisture from the air.

1. Remove the A/C condenser (see **A/C CONDENSER REPLACEMENT**).
2. Remove the bolts from the A/C condenser, then remove the receiver/dryer (A), the bracket (B), and the O-rings (C).

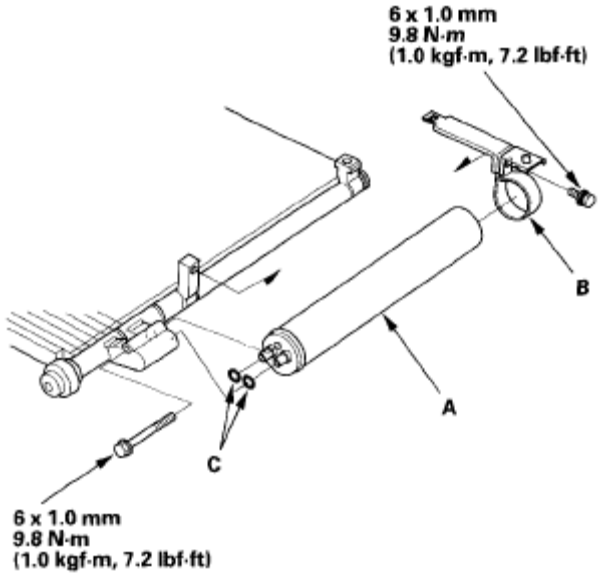


Fig. 115: Removing Receiver/Dryer, Bracket And O-Rings (With Specifications)

3. Install the receiver/dryer in the reverse order of removal. Replace the O-rings with new ones, and apply a thin coat of refrigerant oil (SP-10) before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.

2-DOOR

NOTE: Install the receiver/dryer as quickly as possible to prevent the system from absorbing moisture from the air.

1. Remove the A/C condenser (see **A/C CONDENSER REPLACEMENT**).
2. Remove the cap (A) from the bottom of the A/C condenser. Remove the O-rings (B) and the desiccant (C).

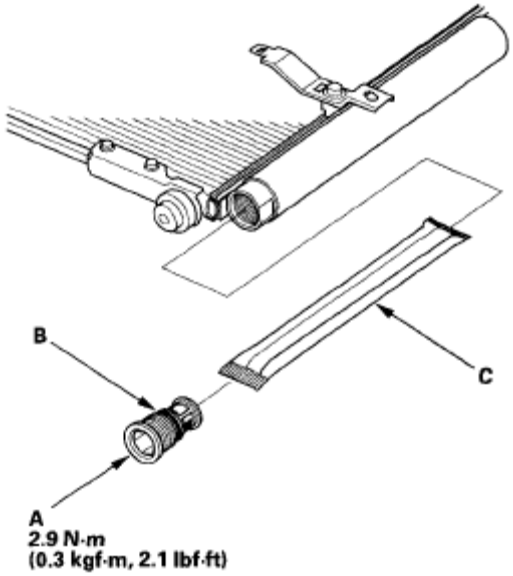


Fig. 116: Removing O-Rings And Desiccant (With Specifications)

3. Install the receiver/dryer in the reverse order of removal, and note these items:
   - Replace the O-rings with new ones, and apply a thin coat of refrigerant oil (SP-10) before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Install the cap to the specified torque. It is made of resin a can be easily stripped.

REFRIGERANT RECOVERY

CAUTION:
- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

NOTE:
- **If accidental system discharge occurs, ventilate work area before resuming service.**
- **Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.**

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.

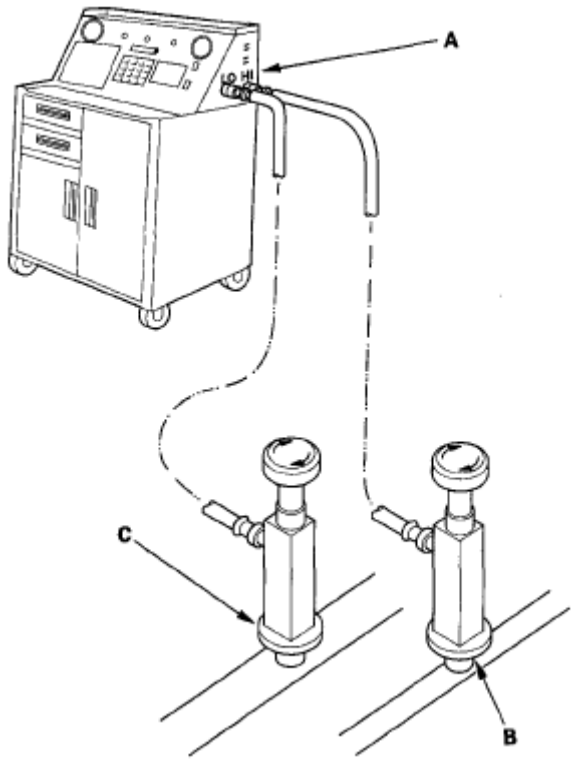


Fig. 117: Connecting Refrigerant Recovery/Recycling/Charging Station To High-Pressure And Low-Pressure Service Port

2. Measure the amount of refrigerant oil removed from the A/C system after the recovery process is completed. Be sure to put the same amount of new refrigerant oil back into the A/C system before charging.

SYSTEM EVACUATION

CAUTION:

- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

NOTE:

- **If accidental system discharge occurs, ventilate work area before resuming service.**
- **Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.**

1. When an A/C System has been opened to the atmosphere, such as during installation or repair, it must be evacuated using an R-134a refrigerant recovery/recycling/charging station. If the system has been open for several days, the receiver/dryer should be replaced, and the system should be evacuated for several hours.
2. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions. Evacuate the system.

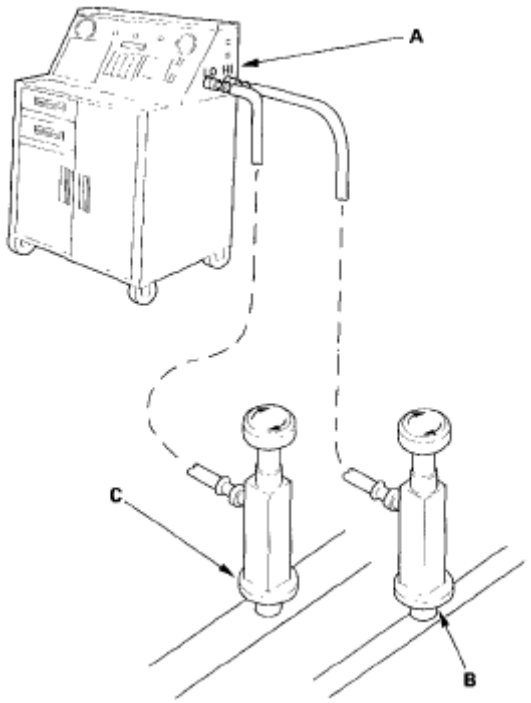


Fig. 118: Connecting Refrigerant Recovery/Recycling/Charging Station To High-Pressure And Low-Pressure Service Port

3. If the low-pressure does not reach more than 93.3 kPa (700 mmHg, 27.6 in.Hg) in 15 minutes, there is probably a leak in the system. Partially charge the

system, and check for leaks (see step 3 in **REFRIGERANT LEAK TEST**).

SYSTEM CHARGING

CAUTION:

- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

NOTE:

- **If accidental system discharge occurs, ventilate work area before resuming service.**
- **Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.**

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.

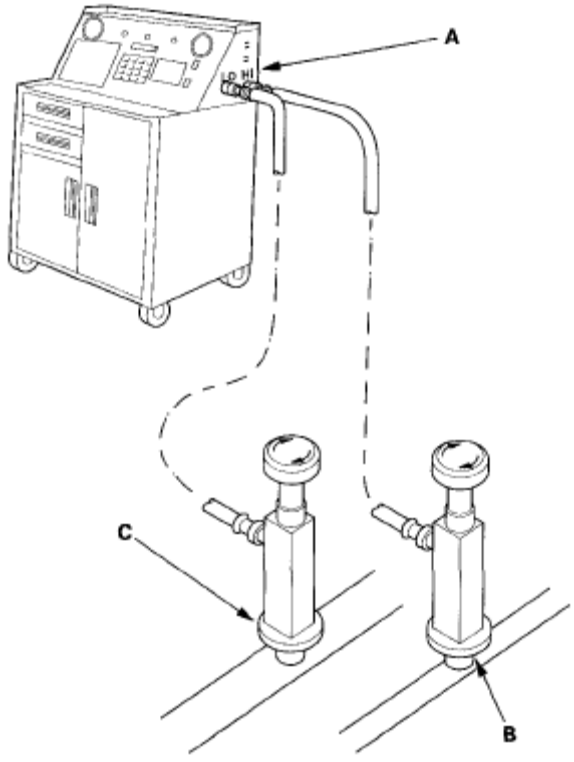


Fig. 119: Connecting Refrigerant Recovery/Recycling/Charging Station To High-Pressure And Low-Pressure Service Port

2. Evacuate the system (see **SYSTEM EVACUATION**).
3. Add the same amount of new refrigerant oil to the system that was removed during recovery. Use only SP-10 refrigerant oil.
4. Charge the system with the specified amount of R-134a refrigerant. Do not overcharge the system; the A/C compressor will be damaged.

   Select the appropriate units of measure for your refrigerant charging station.

   Refrigerant Capacity:

   400 to 450 g
   0.40 to 0.45 kg
   0.9 to 1.0 lbs
   14.1 to 15.9 oz
5. Check for refrigerant leaks (see **REFRIGERANT LEAK TEST**).

6. Check the system performance (see **A/C SYSTEM TEST**).

REFRIGERANT LEAK TEST

Special Tools Required

Leak detector, Honda Tool and Equipment YGK-H-10PM or commercially available

CAUTION:

- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

NOTE:

- **If accidental system discharge occurs, ventilate work area before resuming service.**
- **Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.**

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.

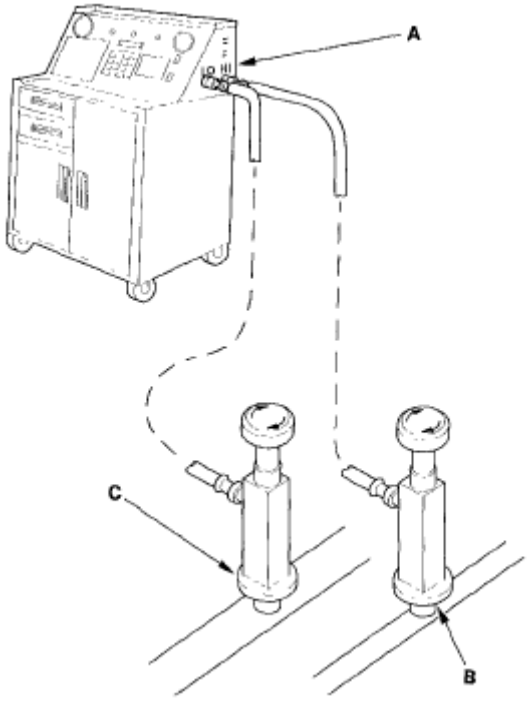


Fig. 120: Connecting Refrigerant Recovery/Recycling/Charging Station To High-Pressure And Low-Pressure Service Port

2. Open high pressure valve to charge the system to the specified capacity, then close the supply valve, and disconnect the charging station fittings.

   Select the appropriate units of measure for your refrigerant charging station.

   Refrigerant Capacity:

   400 to 450 g
   0.40 to 0.45 kg
   0.9 to 1.0 lbs
   14.1 to 15.9 oz
3. Check the system for leaks using an R-134a refrigerant leak detector with an accuracy of 14 g (0.5 oz) per year or better.
4. If you find leaks that require the system to be opened (to repair or replace hoses, fittings, etc.), recover the system.
5. After checking and repairing leaks, the system must be evacuated.

A/C SYSTEM TEST

PERFORMANCE TEST

CAUTION:

- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

The performance test will help determine if the A/C system is operating within specifications.

NOTE:

- **If accidental system discharge occurs, ventilate work area before resuming service.**
- **Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.**

1. Connect an R-134a refrigerant recovery/recycling/charging station to the high-pressure service port and the low-pressure service port, following the equipment manufacturer's instructions.
2. Determine the relative humidity and air temperature.
3. Open the glove box. Remove the glove box stop on each side, then let the glove box hang down (see **GLOVE BOX REMOVAL/INSTALLATION**).
4. Insert a thermometer (A) in the center vent.

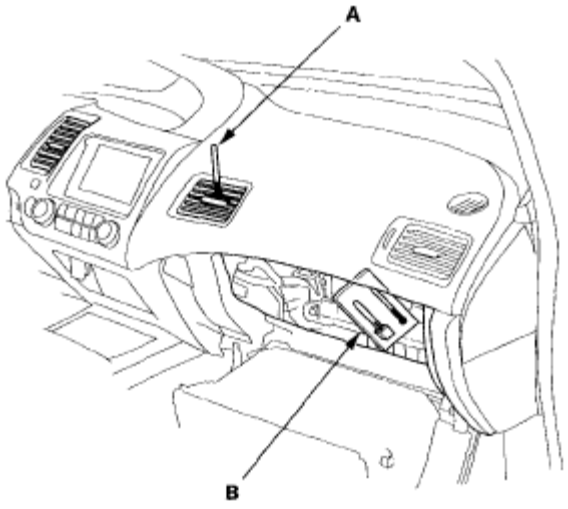


Fig. 121: Inserting Thermometer In Center Vent

5. Place a thermometer (B) near the blower unit's recirculation inlet duct.
6. Test conditions:
   - Avoid direct sunlight.
   - Open hood.
   - Open front doors.
   - Set the temperature control dial to Max Cool, the mode control switch to Vent, and the recirculation control switch to Recirculate.
   - Turn the A/C switch ON and the fan switch to Max.
   - Hold the engine speed at 1,500 rpm.
   - No driver or passengers in vehicle.
7. After running the air conditioning for 10 minutes under the above test conditions, read the delivery temperature from the thermometer in the center vent, the intake temperature near the blower unit, and the discharge (high) and suction (low) pressures on the A/C gauges.
8. To complete the charts:
   - Mark the delivery temperature along the vertical line.
   - Mark the intake temperature (ambient air temperature) along the bottom line.
   - Draw a line straight up from the air temperature to the humidity.

- From each point, draw a horizontal line across the delivery temperature.
- The delivery temperature should fall between the two lines.
- Complete the low-side pressure test and high-side pressure test in the same way.
- Any measurements outside the line may indicate the need for further inspection.

Example

Intake temperature (dry): 86°F (30°C) Humidity level 70%
Intake temperature (wet): 77.9°F (25.5°C)
Delivery temperature: 61°F (15.9°C)

Intake pressure: 261 kPa (2.7 kgf/cm^2 (38psi)

Delivery pressure: 1,780 kPa (18.2 kgf/cm^2 (258 psi)

Results: Within normal range

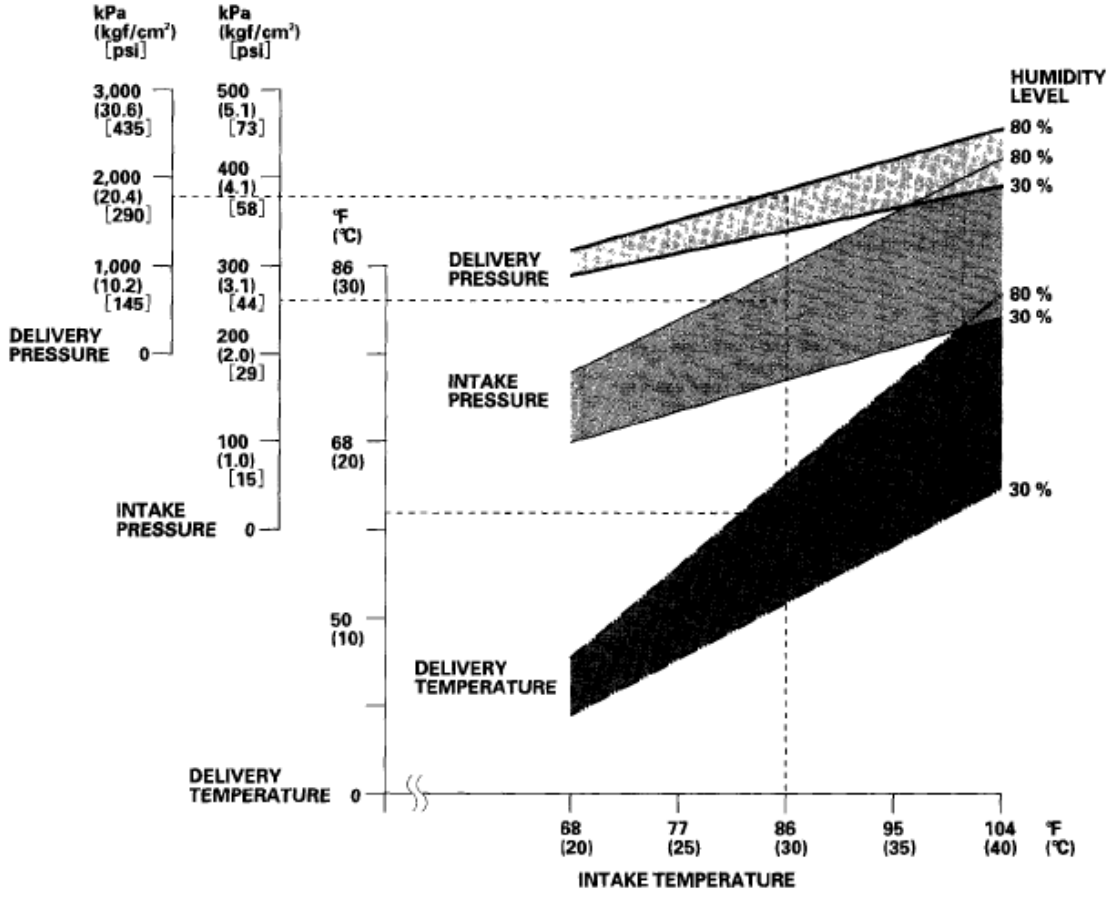


Fig. 122: A/C System Test Graph

PRESSURE TEST

PRESSURE TEST DESCRIPTION

Test results	Related symptoms	Probable cause	Remedy
	After stopping A/C compressor, pressure drops about 196 kPa (2.0 kgf/cm^2 ,28 psi) quickly, and then falls gradually.	Air in system	Recover, evacuate (see **REFRIGERANT RECOVERY**), and recharge with specified amount (see **SYSTEM CHARGING**).
Discharge (high) pressure		• Clogged condenser or radiator fins	• Clean

abnormally high	Reduced or no airflow through A/C condenser.	• A/C condenser or radiator fan not working properly	• Check voltage and fan rpm. • Check fan direction.
	Line to A/C condenser is excessively hot.	Restricted flow of refrigerant in system	Restricted lines.
Discharge pressure abnormally low	High and low-pressures are balanced soon after stopping A/C compressor. Low side is higher than normal.	• Faulty A/C compressor discharge valve • Faulty A/C compressor seal	Replace the A/C compressor.
	Outlet of expansion valve is not frosted, low-pressure gauge indicates vacuum.	• Faulty expansion valve • Moisture in system	• Replace. • Recover, evacuate, and recharge with specified amount.
Suction (low) pressure abnormally low	Expansion valve is not frosted, and low-pressure line is not cold. Low-pressure gauge indicates vacuum.	• Frozen expansion valve (Moisture in system) • Faulty expansion valve	• Recover, evacuate, and recharge with specified amount. • Replace the expansion valve.
	Discharge temperature is low, and the airflow from vents is restricted.	Frozen evaporator	Run the fan with A/C compressor off, then check evaporator temperature sensor.
	Expansion valve is	Clogged	Clean or replace.

	frosted.	expansion valve	
Suction pressure abnormally high	Low-pressure hose and check joint are cooler than the temperature around evaporator.	Expansion valve open too long	Repair or replace.
	Suction pressure is lowered when A/C condenser is cooled by water.	Excessive refrigerant in system	Recover, evacuate, and recharge with specified amount.
	High and low-pressures are equalized as soon as the A/C compressor is stopped, and both gauges fluctuate while running.	• Faulty gasket • Faulty high-pressure valve • Foreign particle stuck in high-pressure valve	Replace the A/C compressor.
Suction and discharge pressures abnormally high	Reduced airflow through A/C condenser.	• Clogged A/C condenser or radiator fins • A/C condenser or radiator fan not working properly	• Clean • Check voltage and fan rpm. • Check fan direction.
Suction and discharge pressures abnormally low	Low-pressure hose and metal end areas are cooler than evaporator.	Clogged or kinked low-pressure hose parts	Repair or replace.
	Temperature around expansion valve is too low compared	Clogged high-	Repair or replace.

	with that around receiver/dryer.	pressure line	
Refrigerant leaks	A/C compressor clutch is dirty.	A/C compressor shaft seal leaking	Replace the A/C compressor.
	A/C compressor bolt (s) are dirty.	Leaking around bolt(s)	Tighten bolt(s) or replace A/C compressor.
	A/C compressor gasket is wet with oil.	Gasket leaking	Replace the A/C compressor.
	A/C fitting is dirty.	Leaking O-ring	Clean the A/C fitting and replace the O-ring.